

THE
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.
OF THE
.
MEDICAL SCIENCES.

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THE
AMERICAN JOURNAL
OF THE
MEDICAL SCIENCES.

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TO READERS AND CORRESPONDENTS.

Punctuality in its appearance we consider as an essential virtue in a periodical work, and the delay in the past and present No. of this Journal is therefore a subject of great mortification to the Editor. A protracted indisposition must be his apology. A considerable portion of the February No. is already in type, and it may be expected at the regular period. Hereafter we trust that this Journal will display the same punctuality which previously characterized it.

We have in type a very interesting article on cholera by Dr. JACKSON, which will appear in our next—it was found impossible to have the drawings representing the appearances of the mucous membrane, engraved and coloured in time for the present No.

Communications have been received from Drs. GERHARD, HEUSTIS, and HARD.

The cases illustrative of the application of physiological medicine to the diseases of Louisiana, in the present No. of the Journal, are part of an elaborate and ingenious memoir, which we hope hereafter to lay before our readers.

It is expected that papers sent to us for publication will not be simultaneously transmitted to other Journals. The propriety of this is too obvious to require comment.

The following works have been received.—

The Cholera Spasmodica, as observed in Paris in 1832; comprising its symptoms, Pathology, and Treatment. Illustrated by Cases. By ASHBEL SMITH, M. D. of North Carolina, officially attached to the Necker Hospital, during the Prevalence of the Epidemic. New York, 1832. (From the author.)

Remarks on the Cholera, embracing Facts and Observations collected at New York, during a visit to the city expressly for that purpose. Third edition. Providence, 1832. (From the authors.)

Observations on the Chlorides and Chlorine, as disinfecting Agents, and as Preventives of Cholera. By HENRY BRONSON, M. D. (From the author.)

Human Physiology; illustrated by numerous Engravings. By ROBERT DUNGLISON, M. D. Professor of Physiology, Pathology, &c. in the University of Virginia, Member of the American Philosophical Society, &c. 2 vols. octavo. Philadelphia. Carey & Lea, 1832. (From the author.)

Report of the Committee of the Kappa Lambda Society, appointed for the purpose of preparing an Account of the Mode of Treatment of Epidemic Cholera. June. Together with an additional Report presented August 15th, 1832. Published by order of the Society. New York, 1832.

Manual of General, Descriptive, and Pathological Anatomy. By J. F. MECKEL,

Professor of Anatomy at Halle, &c. &c. Translated from the German into French, with Additions and Notes. By A. J. L. JOUHAN, Member of the Royal Academy of Medicine at Paris, &c. &c. and G. BRESCHET, Adjunct Professor of Anatomy at the School of Medicine, &c. &c. Translated from the French, with Notes. By A. SIDNEY DOANE, A. M., M. D. 3 vols. 8vo. Philadelphia: Carey and Lea. (From the publishers.)

Cases of Cholera collected at Paris in the month of April, 1832, in the Wards of MM. Andral and Louis, at the Hospital La Pitié. By JAMES JACKSON, JR. Boston. Carter & Hendee, 1832. (From the author.)

Litterarische Annalen der Gesammten Heilkunde, Herausgegeben. Von Dr J. F. C. HECKER, November, December, 1831, January, February, March, April, 1832. (In exchange.)

Archives Générales de Médecine, April, May, June, and July, 1832. (In exchange.)

Annales de la Médecine Physiologique, December, 1831, January, February, March, April, and May, 1832. (In exchange.)

Revue Médicale, April, May, June, and July, 1832. (In exchange.)

Bulletin des Sciences Médicales, November and December, 1832. (In exchange.)

Gazette Médicale, May, June, July, and August, 1832. (In exchange.)

Journal Universel et Hebdomadaire, May, June, July, and August, 1832 (In exchange.)

Mémorial Encyclopédique et Progressif des Connaissances Humaines, April, May, June, July, and August, 1832. (In exchange.)

Transactions Médicales, Journal de Médecine Pratique et de Littérature Médicale, April, May, and June, 1832. (In exchange.)

The London Medical Gazette, for June and July, 1832, (In exchange.)

The London Medical and Physical Journal, for August, 1832. (In exchange.)

The London Medical and Surgical Journal, for July and August, 1832. (In exchange.)

The Edinburgh Medical and Surgical Journal, February and July, 1832. (In exchange.)

The Western Journal of the Medical and Physical Sciences, for July, 1832. (In exchange.)

The Boston Medical and Surgical Journal, Vol. VII. 1 to 11. (In exchange.)

The Maryland Medical Recorder, for July, 1832. (In exchange.)

The Transylvania Journal of Medicine and the Associate Sciences, Vol. V. No. III.

The Medical Magazine, conducted by A. L. PIERSON, J. B. FLINT, and E. BARTLETT, No. 4, Vol. I.*

* The first three No.'s have not been received.

Authors of new medical books, desirous of having them reviewed or noticed in this Journal at the earliest opportunity, are invited to transmit to the *Editor* a copy as soon after publication as convenient, when they will receive prompt attention. Under ordinary circumstances, very considerable delay is caused by the circuitous routes through which they are received.

Papers intended for publication, should be sent, *free of expense*, as early after the appearance of the Journal as possible, in order to be in time for the ensuing number. Such communications should be addressed to "CAREY & LEA, Philadelphia, for the Editor of the American Journal of the Medical Sciences."

All letters on the *business* of the Journal to be addressed exclusively to the publishers.

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ERRATA

- Page 45, line 3 from bottom, for "lightest," *read* "highest."
48, " 12 " top, for "awakened," *read* "weakened."
157, " 13 " bottom, for "mucous," *read* "serous."

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- XIV. Theoretisch-praktisches Handbuch der Chirurgie, mit Einschluss der Syphilitischen und Augen-krankheiten; in alphabetischer Ordnung. Unter Mitwirkung eines Vereines von Aerzten und Wundärzten herausgegeben von Dr. John Nep. Rust, Ritter des Königl. Preuss. rothen Adler-Ordens, Ritter, des eisernen Kreuzes und Kaiserl. Russ. St. Annen-Ordens Zweiter Klasse, &c. Professor der Heilkunde an der Friederich Wilhelms-Universität, und an der Medicinisch-Chirurgischen Militär-Akademie, &c. &c. &c. Band. 1, 2, 3, 4 and 5. Von A. bis Detractis, mit dem bildnisse der Verfassers. Berlin und Wien, 1830-31. pp. 738, 784, 816, 760.
- A Manual of Theoretical and Practical Surgery, embracing the consideration of Syphilitic affections and Ophthalmology, arranged in alphabetical order. By Dr. John Nep. Rust, Professor of Medicine in Frederick William's University, and in the Medico-Chirurgical Military Academy, &c. &c.; assisted by an association of Physicians and Surgeons. Vols. I. to V.—A. to D. Berlin and Vienna, 1830 and 1831 - - - - -
- XV. Lithotrity and Lithotomy compared, being an analytical Examination of the present methods of treating Stone in the Bladder, with suggestions for rendering lithotrity applicable to the disease in almost all its stages and varieties, and remarks on the general treatment of Gravel and Stone. By Thomas King, M. D., M. R. C. S. &c. 8vo. London, 1832 - - - - - 1
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- XVII. Report on the Epidemic Cholera, as it has appeared in the Territories subject to the Presidency of Fort St. George. Drawn up by Order of the Government, under the Superintendence of the Medical Board. By William Scott, Surgeon and Secretary to the Board. Madras, 1824. pp. 292. Folio. With Appendix, &c.
- Du Choléra-Morbus de Pologne; Renseignements sur cette Maladie, recueillis par la Commission des Officiers de Santé Militaires envoyée a Varsovie, par M. Le Marechal Duc de Dalmatie, Ministre de la Guerre. Paris, 1832. pp. 176. 8vo. •
- Cholera, as it has recently appeared in the towns of Newcastle and Gateshead; including Cases, illustrative of its Physiology and Pathology, with a view to the Establishment of Sound Principles of Practice. By T. M. Greenhow, of (Newcastle upon Tyne.) London, 1832. pp. 162. 8vo.
- Practical Observations on Cholera Asphyxia, communicated in a Report to the Greenock Board of Health, as the result of a Mission to the Infected

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Traité Pratique, Théorique et Statistique du Choléra-Morbus de Paris, appuyé sur un Grand Nombre d'Observations recueillies à l'Hôpital de la Pitié. Par J. Bouillaud, Médecin de cet Hôpital pendant l'Epidémie, Professeur de Clinique Médicale à la Faculté de Médecine de Paris, Membre de l'Académie Royale de Médecine, &c. Paris, 1832. pp. 426. 8vo.	
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A Compendium of Operative Surgery. By Dr. Ernest Leopold Grossheim, Physician of the Royal Prussian Staff, Member of the Medico-Chirurgical Society of Berlin, of the Medico-Chirurgical Academy of St. Petersburg, &c. &c. 2 vols. Berlin, 1830, 1831	18
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An Account of the Varioloid Epidemic, which prevailed at Turin in 1829, together with reflexions on Vaccination, &c. &c. By T. D. Griva, of the Medical College, Director-General of Vaccination, &c. &c. Published by order of the Secretary of State for internal affairs	194
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The Cholera Spasmodica, as observed in Paris, 1832; comprising its Symptoms, Pathology, and Treatment. Illustrated by Cases. By Ashbel Smith, M. D. of North Carolina, officially attached to the Necker Hospital, during the prevalence of the Epidemic. New York, Peter Hill, 1832. pp. 80. 8vo.	ib.

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MEDICAL SCIENCES.

ART. I. *A Case of Encephaloid Degeneration, (Fungus Hæmatodes,) of the Knee and lower part of the Thigh, in which Amputation was Performed.* By E. GEDDINGS, M. D. Professor of Anatomy in the University of Maryland, and one of the Surgeons of the Baltimore Infirmary. [With a plate.]

THERE is perhaps no disease, within the whole range of medical and surgical pathology, that has, in modern times, attracted more attention, and proved more difficult of management, than that peculiar condition which has been described under the appellation of encephaloid degeneration, or fungus hæmatodes. Notwithstanding its anatomical characters have been investigated with all that zeal and diligence which the importance of the subject deserves, and its influence upon the organism has engaged the attention of the most able and careful observers, it still continues to set at defiance the most skillfully directed procedures of the art, and to prove fatal in a vast majority of instances, under every variety of treatment. Every case of success, therefore, in the treatment of a disease of a character so formidable, deserves to be recorded, because it will serve to convince us that, however unsuccessful our treatment may be in many cases, we may sometimes hope for a favourable issue even under the most unpromising circumstances. Of this character is the following case, which lately came under my care in the Baltimore Infirmary, and which although presenting no feature of novelty, certainly goes far to prove the propriety of resorting to an operation, although success may not generally crown our exertions. I shall detail the history of

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the case in the language of Mr. ORTHO J. SMITH, a highly intelligent resident pupil of the Infirmary, who is alike deserving of the highest praise for his assiduity and benevolence in the discharge of his duties, and for his zeal in the study of his profession.

"Henry Alexander, (a coloured man,) aged forty years, was admitted into the Baltimore Infirmary, on the 10th of August, 1832, with an enormous tumour involving the whole of his left knee, and a considerable portion of the thigh, which he stated had commenced growing about six years antecedent to the above-mentioned period. The disease first commenced with slight pain, which was mistaken and treated for rheumatism. Some time after this, the attention of the patient was attracted to a small tumour of the size of a hen's egg, situated in the vicinity of the patella. This continued to increase gradually every year; until it attained a great magnitude. At the time of his admission the circumference of the tumour measured about twenty-six inches; its transverse diameter was nine inches, and its antero-posterior diameter about eight and a half inches, while the length of the body of the tumour measured fifteen inches. Its form was that of an oblong watermelon, and it was quite regular upon its surface, with the exception of one or two little prominences. The skin covering the tumour was perfectly smooth, and exhibited a glossy appearance, occasioned no doubt by the great distention produced by the rapid growth of the diseased mass. There were many little streaked elevations upon its surface, which were very perceptible when it was gently stroked over by the hand. These were occasioned by numerous enlarged veins, which were prevented, by the black colour of the skin, from exhibiting the blue appearance which they generally manifest under similar circumstances, in those of a fairer complexion. There were no ulcerations or fissures upon the surface of the tumour, except one which had been intentionally made by his attending surgeon, previously to his entrance into the infirmary. This opening, it was stated by the patient, had been made with a view of evacuating matter, but to the disappointment of all, nothing but blood escaped, about half a pint of which was evacuated. From this orifice had arisen an irregular excrescence about the size of a nutmeg, through which a sanious fluid constantly oozed, so very offensive, as to render it necessary to remove the dressings frequently in the course of the day. The tumour felt tense and elastic to the touch, and at times, when pressed alternately in different directions by the hand, imparted a sensation of the existence of some fluid within. The patient stated that he had been able to walk until about two weeks previous to his entering the infirmary, without experiencing much pain. He indeed always found relief while he continued in motion, but as soon as the leg was suffered to remain quiescent, the pain would recur, and continue until again removed by motion, which afforded him immediate ease. At night the tumour became hot, and was attended with lancinating pains, which were followed next morning by a heaviness and stiffness of the limb. He generally rested well during the first part of the night, but perspired very freely towards morning. The tongue was a little furred, but the appetite continued good until a few days previous to the removal of the tumour. His constitutional irritability was, however, very considerable, and

the pulse, though usually about 112 during the day, was by the excessive pain which he experienced at night, accelerated so as to number about 120.

"In this condition he entered the infirmary, when it was determined by Professors Baker and Geddings, that amputation furnished the only prospect of relief, and from the unfavourable nature of the case, even this could scarcely be expected to arrest the progress of the disease; for in addition to the extensive degeneration of the structures already detailed, the lymphatic ganglions of the groin were considerably enlarged, and those of the iliac region could be felt, through the parietes of the abdomen, forming a hard irregular chain of considerable extent. Under these circumstances it was feared, that even if the stump should heal, the disease would display itself at some other point, and finally destroy the life of the patient. During two days, that the individual remained in the infirmary, previous to the performance of the operation, he suffered so much from violent pain of the tumour, that it was necessary to give him \times . grs. Dover's powder, with a fourth of a grain of morphia, at night, to produce composure. At this time his pulse was remarkably irritable, and his skin was covered with a profuse clammy perspiration."

On the 13th, two days after the admission of the patient into the infirmary, assisted by my friend and colleague, Professor SMITH, Dr. JENKINS, resident physician, and Messrs. SMITH, and WEBSTER, resident pupils of the house, and in presence of several medical gentlemen and students, I proceeded in the following manner to remove the thigh by amputation, about three inches below the greater trochanter. Mr. Smith having commanded the flow of blood through the crural artery, by compressing that vessel where it passes over the horizontal branch of the pubis, with a long double-edged amputating knife, I transfixed the central part of the thigh, by making the point of the instrument glide round the inner side of the bone, after which the knife was carried downwards and inwards, so as to form a flap of the soft parts situated on the inner part of the thigh. The integuments of the outer part of the member being then drawn outwards with the left hand, the knife was again inserted at the same point, and made to glide in a similar manner round the outer side of the bone, so as to be brought out at the posterior angle of the first incision. A second flap was thus formed, of the same dimensions as the first, which being held back, the soft parts adhering to the bone were divided by a circular cut, on a level with the point at which it had to be saved through. This done, a retractor was applied, and the bone was divided by a few strokes of the saw. These stages of the operation were completed in something less than a minute. On making the first incision, a considerable gush of venous blood took place from the tumour, but the pressure on the artery commanded effectually the circulation of that vessel. The arteries were next secured, and the two flaps neatly adjusted, by means of adhesive strips, so as to cover

the face of the stump. The patient was then carefully put to bed. The subsequent history of the case I shall furnish from the notes of Mr. Smith.

"The pulse was considerably depressed after the operation, but in the course of a few hours reaction took place, and the patient continued to do well. On the third day after the operation, the stump was examined, and was found in a favourable condition, the greater part of it having united by the first intention. He had been a little restless on the night of the 15th, and required a small dose of anodyne.

"17th. Stump dressed—doing well; but pulse irritable, and the skin covered with a clammy perspiration.

"18th. Wound dressed—discharges a dark-coloured, offensive sanies, occasioned by a slight oozing of venous blood, which succeeded the preceding dressing.

"20th. Stump examined and dressed—presents a more healthy aspect, and the sanious discharge has decreased greatly in quantity. Exuberant fungous granulations have shot forth from the medullary portion of the bone, to repress which, a strong solution, sulph. zinci, is employed.

"23d. The stump is doing admirably well; looks healthy, is unattended with pain, and is healing rapidly. Bowels have been regular from the time of the operation, and no medicines of any kind, except the single anodyne, have been required.

"25th. Slept well during the night; appetite good, skin soft and moist, and of its natural temperature.

"28th. Patient continues to improve; wound dressed every day, and doing well. Tongue clean; pulse 90; no pain.

"31st. No medicine as yet required. Bowels regular; pulse 80, and more tranquil. Wound dressed occasionally until the 15th of September, when he was taken from the infirmary and carried home. At this time the wound was entirely healed, with the exception of an inch in the centre, which was perfectly healthy, and cicatrizing rapidly. The enlarged lymphatic glands had disappeared. Tongue clean, appetite good, skin natural, and bowels regular."

Dissection of the tumour.—On laying open the whole length of the tumour by a longitudinal incision carried through its centre, it was found to present one continuous mass of encephaloid degeneration, without any vestiges of the natural structures of the part intermixed with it, except the bone, which occupied its centre. The muscles, the cellular tissue, the tendons, and aponeurosis, had all disappeared, and had their places supplied by the heteroclyte development, which formed the diseased mass. The patella was the only bone which had suffered much from the ravages of the disease, and nearly the whole of its substance was entirely consumed. The lower head of the femur was not involved, and the internal structures of the knee-joint seem to have had no participation in the development of the disease.

The encephaloid mass itself was arranged in irregular lobules, which were inclosed in their sheaths or coverings of cellular tissue, which were highly vascular, but the vessels did not extend beyond these coverings. The characters of the heteroclyte tissue varied considerably at different points, though throughout it exhibited the lobulated arrangement already adverted to. In some situations it was of a light cream colour, and of the consistence of brain, the aspect of which it resembled: Some portions of it exhibited a slight shade of pink, while others were of a dark dirty red, or even scarlet. Its consistence presented all the intermediate grades between that of indurated brain and a mere diffuent pulp, resembling the cerebral substance when disorganized by putrefaction. Some of the masses in which the process of ramollissement had advanced so far, resembled a kind of membranous cyst, filled with a dirty reddish-coloured pulp, which flowed out as soon as the part was laid open. The vessels in the vicinity of these were numerous, and from some of them, extravasations of blood had taken place amongst the disorganized pulp, which served to impress upon it a more bloody character. From these vessels also, a considerable hæmorrhage had taken place, on the tumour having been punctured, with a view of diminishing its tension, which was distressing to the patient two nights before the operation.

It has been already stated, that this case has not been reported on account of its presenting any features of novelty, but because it exhibits one example, amongst many others, which might be adduced in favour of resorting to amputation under similar circumstances, even though the prospects of success may be remote. At the time the individual who was the subject of the present case, entered the hospital, no hope of a successful issue was entertained. His condition without the operation was deperate, and it was conceived, that by amputating, life perhaps might be prolonged. This much at least has been gained; and the general health of the patient is now so good, and the stump has healed up so kindly, that even a prospect of complete success is held out. Sufficient time has not, however, as yet elapsed, to justify a positive decision upon this point. Enough has, nevertheless, been gained, to prove the propriety of the operation, and the important advantages which may sometimes be derived from its adoption in similar cases.

Baltimore, September 20th, 1832.

ART. II. *Remarks on the Euphorbia Hypericifolia.* By WILLIAM ZOLLICKOFFER, M. D., F. C. P.; late Lecturer on Botany, Materia Medica, and Toxicology; Corresponding Member of the Medico-Botanical Society of London; Member of the Helvetic National Academy of Natural Sciences; Honorary Member of the Society of Natural Sciences of Saint Gall, Switzerland, &c.

SEVERAL years have elapsed since I first presented the medical community, through the medium of the New York Medical Journal, and of the Transactions of the Medico-Botanical Society of London, with some observations appertaining to the remedial virtues of the *Euphorbia hypericifolia*, the medicinal powers of which were unknown to the profession antecedent to that period.

Again I am induced to invite the attention of the members of the medical profession to the consideration of the subject of the utility of the interesting indigenous *hypericifolia*, from a conviction of the vast advantages which will necessarily accrue as a consequence of its judicious exhibition in the affections in which the classes of remedies are conjointly indicated to which it so deservedly belongs.

This vegetable production, that is exclusively a native of the United States, arrested my attention in the year 1819; since that time my mind has not unfrequently been directed to an investigation of its therapeutic operation, and, in a very great number of instances, I have been delighted with the efficient displays of its curative influence in diseases which had previously resisted the use of the ordinary astringents, administered alone, and in association with opium; a circumstance that doubtless is attributable to some peculiarity in its mode of action, depending upon certain elements that exists in its composition, as furnished by nature, which, although individually inert, confer additional strength and impulse upon the principles of activity with which they are associated, that cannot be successfully effected by any attempt of art in imitation of the combined powers which it displays, aided by the application of the most minute knowledge in the possession of the profession, in relation to the important principles of medicinal combination.

Kino and catechu, with many other vegetable astringents which I have often prescribed individually and in conjunction with narcotics, in the maladies in which the separate and conjoint exhibition of these remedial articles are often competent to the production of the happiest results, sink into comparative insignificance when viewed with the successful impressions which accompany this plant in its modes of

action, and in its ultimate consecutive displays, in accomplishing the important objects of its internal administration.

Medicinal consociations which are required to obviate different symptoms, or answer different indications, but by modes of action altogether opposed to each other, it is well known, should, in many instances, be had recourse to, in order to enable the physician to manage particular diseases with which he has to combat, with dexterous ability, with determinable promptness, and with ultimate success. Cases illustrative of this position can very readily be adduced in attestation of the assertion, and in demonstrative elucidation of the nature and importance of such combinations. The following one will doubtless be considered sufficiently competent of itself for the establishment of this declaration. "In diarrhœa, an astringent, properly so called, diminishes the flow of those acrid fluids into the intestines, by which their peristaltic motions are preternaturally increased, and it consequently represses the diarrhœa; a narcotic under similar circumstances might not repress the flow of acrid matter to which I have alluded, but it would render the bowels less susceptible to its stimulus, and would therefore produce the same apparent alleviation, although by a very different mode of operation." It will very readily be perceived that the restraining influence of the astringent is here displayed by the corrugating and consequent condensing power that it exerts on the intestinal canal; while the effect of the narcotic in diminishing the irritability of the intestinal organs and subsequently checking the diarrhœa, is the result peculiar to its operation in allaying the sensibility of the sentient parts of the animal economy. By a consociation of these two agents the practitioner avails himself at once of an important and decided advantage in arresting the progress of this excessive evacuation, not only with the more promptness, than by the single administration of an astringent, but with the more certainty of preventing its immediate return; for the narcotic diminishing the quickness of the sensation of the bowels to the action of the acrid secretions which are checked by the operative influence of the constringent agency of the astringent, until these secretions pass off by the rectum, greatly facilitates the effects of the latter medicinal substance, by its display of action in this way upon the sensibility. An astringent exhibited alone would be calculated to check the inordinate secretions, but these secretions would be reproductive of the diarrhœa, as a consequence of their irritating operation on the bowels; hence the necessity of the combined use of the remedies of the classes to which they belong, in order to insure the successful management of the malady that is here selected as the subject of illustration, in

order to demonstrate the nature and importance of medicinal combinations. It is to this double play in the remedial action of a narcotic associated in native combination with a powerful astringent, in the character of the *Euphorbia hypericifolia*, that gives to it the superiority it possesses over other analogous remedies effected by medicinal combination, with a view of producing similar consequential results.

Satisfied with these preliminary remarks, I shall in the further prosecution of this paper proceed with a relation of the botanical description of this useful plant; and avail myself of a notice of its chemical composition, and conclude with an historical account of the diseases in which it has proved itself competent to the production of the most satisfactory results.

The *Euphorbia hypericifolia* delights in a rich and prolific soil, and is an inhabitant of gardens and other fertile situations. It is recognised by the common and local appellations of black-pursely, milk-pursely, milk-weed, &c. MICHAUX, who doubtless was well acquainted with its botanical character, has favoured the medical profession with the following description of its specific difference, by which it can very readily be ascertained from any other individual belonging to the genus euphorbia. "*Euphorbia hypericifolia*, glabra, dichotome, ramosissima, erectiuscula-patula, ramis divaricatis; foliis oppositis, subfalcato-oblongis, argute serratis; ramusculis in summitate fasciculatim multifloris."

This species of euphorbia is an annual plant, that grows to the height of a foot, and is rather procumbent. It has a smooth stalk, which is repeatedly forked with divaricated branches. The leaves, which are opposite and oblong, are somewhat falciform, and deeply serrated; these are often covered with purple spots. The flowers, which appear in August and September, are white and situated in numerous quantities on the extremity of the small branches. This plant, of which I perceive there is another variety, belongs to the eleventh class, dodecandria: the third order, trigynia; and the natural order, tricocceæ of LINNÆUS, and euphorbiæ of JUSSIEU.

Being rather dissatisfied with the result of a former chemical examination of this plant, I concluded to extend my investigation upon this subject somewhat further. I digested several portions of it, after having previously reduced it to a state of pulverization, in sulphuric ether and alcohol. The ethereal solution gave a precipitate upon the addition of alcohol. The alcoholic preparation assumed a pearly turbidness when water was added. Both the ethereal and alcoholic solutions, upon being evaporated, afforded a residuum that burnt with

great vividness, and exhibited a flame much like that resulting from the combustion of spirit of wine. The infusion and decoction that was prepared from distilled water, produced a copious precipitate when gelatine was added; and assumed a dark blue colour on the addition of the sulphate of iron. From these results we may justly infer, that the chemical composition of this plant consists of caoutchouc, resin, tannin, and gallic acid.

To the organs of gustation this vegetable substance produces an impression somewhat different from all of the other species belonging to the genus euphorbia hitherto known. Its taste is sweetish; this is immediately succeeded by a sensation of harshness and roughness imparted to the palate, being too peculiar to be mistaken by even the most ordinary observer, who has ever attempted to eat a green persimmon. In its remedial character, it likewise differs very considerably from any other individual belonging to the same family of plants; so much so, that it seems to have been the prevailing opinion among practical and experimenting botanists, that all the species included in this extensive genus, euphorbia, possessed acrid and irritating qualities.

Relating more particularly to the therapeutic displays of the article that is the subject of this communication, I shall commence the notice of the diseases in which it has been exhibited with advantage, by first introducing dysentery as one of the examples in attestation of the remedial operation it exerts on the animal economy in removing diseased action, and in restoring the healthy condition of parts that are deranged in consequence of morbid excitement. In this malady, when the true dysenteric symptoms have continued, after the inflammatory diathesis had been removed by appropriate antiphlogistic means, I have been more successful with the use of this remedy, than with the conjoint administration of the ordinary astringents with narcotics. The evacuations have very soon become changed both as relates to their character, condition, and frequency, and the other unpleasant concomitant symptoms subside in a degree commensurate with the recession of the unfavourable appearances of these evacuations. In most of the cases which I have treated with this remedy, I have been enabled to effect their removal in the course of forty-eight hours. In the primary stage of dysentery, I have never given it a trial, from a persuasion, that remedies of this kind are in direct contravention to its successful management.

Diarrhoea, a malady with which the inhabitants of almost every section of the country are more or less affected, is a disease which, although in the generality of cases seldom prove so imminently dangerous as the one that has just been noticed; nevertheless, it not un-

frequently, from its debilitating influence, undermines the vital energies, and consequently acts as an outlet to human existence. In this affection I can recommend the article under consideration as a useful and valuable medicine. I have, however, previous to prescribing it in most instances directed the exhibition of calomel in conjunction with castor oil, or some other purgative medicine, with the view of removing any vitiated secretions that might be present in the intestinal canal. When this disease has been of long standing, from a protracted debility of the bowels, this remedial agent will be found a prompt and effectual remedy.

In menorrhagia arising from debility, and consequently requiring for its removal remedies that are competent to the production and restoration of the healthy tone and vigour of the general system, by which a corresponding impression is imparted to the uterine system, and the hæmorrhagic diathesis thereby removed, I have given the *hypericifolia* with most excellent effects. By its operation as a tonic, upon the principle of astringents acting as tonics, tone is imparted to the general system; while by the slight narcotic influence that it exerts in allaying and removing the irritability of the system, which is associated with this malady in unison with no inconsiderable degree of prostration of the nervous energy, the irregular catamenial flow, is brought within the controul of medical management, and the unfortunate sufferer soon experiences the happy adaptation of this application to the correction of this state of diseased action.

In fluor albus I have directed its use in twelve cases, in ten of which, in between twenty and twenty-five days, this affection disappeared. The remaining two were relieved by copious purgation. In these cases the disease seemed to owe its occurrence to the circumstance of plethora, in connexion with the existence of obstinate constipation of the bowels for several weeks.

The manner in which I have generally directed the *Euphorbia hypericifolia* to be used, is in the form of infusion, of the following strengths.—℞. *Euphorbia hypericifolia folioum exsicc.* ʒss. To be infused in a pint of boiling water for half an hour. In dysentery I mostly direct a table-spoonful to be given every hour until the morbid symptoms begin to yield; and then to be used less frequently. In diarrhœa, this quantity should be taken after every evacuation. The quantity that I have used in menorrhagia and fluor albus, is that of a wine-glassful morning, noon, and at night. I have said nothing of the dietetical plan to be pursued in connection with the administration of this plant, because this part of the management of the cases noticed in this communication, is always regulated by the knowledge the practitioner has in relation to the *materia alimentaria*.

ART. III. *Case of Stone, in which the Fundus of the Bladder was coated with Calculous Incrustation, successfully treated.* By AMASA TROWBRIDGE, M. D. of Watertown, Jefferson county, New York.

MR. RIDER, the subject of this case, was thirty years of age, by occupation a carpenter, and of full habit. He had enjoyed good health until within the last four years, during which time, he was afflicted with pain in the region of the bladder, with a sensation of weight and uneasiness around that organ; there was a disposition to void water frequently; the urine was neither much discoloured, nor increased or diminished in quantity. These symptoms increased the last year, with additional symptoms of calculous, such as more severe pain in voiding water, and the disposition to urinate returning at shorter intervals. His rest was disturbed at night; he was obliged to void water eight or ten times; was generally feverish and thirsty; pulse generally about 80; general health not much impaired; appetite good, and tongue clean. There had been, generally, a constipation of bowels; and he had suffered a few weeks before he called on me, by an aggravation of all his symptoms, without any assignable cause.

The almost entire suppression of urine occasioned the necessity of using the catheter, and in doing this, Dr. SMITH detected a stone. I was in a few days after consulted. On sounding, I found a stone, of a large size, resting near the neck of the bladder, so that it was instantly struck, on the sound entering, and the instrument constantly rested on calculi, when pushed forward, or moved in any direction. At this interview, the patient gave me the further particulars of his case, as above detailed; and stated that he had been treated by different physicians for various complaints, supposed to exist in the urinary organs, without much change or relief of symptoms. No one had supposed it to be a case of calculus, till a stone was detected by Dr. Smith. He consented to the operation of lithotomy, which was performed after opening his bowels with oleum ricini, and the use of mucilaginous drinks, for three days, as a preparatory step. The patient was placed on a chest, raised sufficiently high to be convenient for the operator to sit in a chair before him, confined in the usual manner. The instruments used was a common scalpel, to make the incision to the staff, and PHYSICK'S improved gorget, of the largest size, to cut into the bladder, and the other instruments in readiness generally used in such operations. In making the incisions to the staff, the transverse artery of the perineum was divided, and it bled so powerfully as to require a ligature. The

bulbous artery was divided, and threw strong jets of blood, but was restrained, by an assistant holding his finger on it for a few minutes. Forceps of a common size were easily introduced, and placed on the stone, which proved to be very large, and after several attempts to bring it through the incision without success, I withdrew the forceps, examined with my finger, and ascertained that the stone was spherical, and could not be brought out whole with safety to the patient. I crushed it, and brought out with the forceps a large piece; introduced the forceps several times, and brought out large fragments; after this, washed out many with the syringe, and removed others with the scoop. Finding that the scoop still touched stone near the fundus of the bladder, and fastening on some that could not be brought down, and when I attempted it, gave great pain to the patient; I again sounded with my finger, and was astonished to find the mucous membrane of the bladder, near its fundus, coated with a calculous incrustation of considerable thickness and hardness, but easily broken by pressing my finger against it. There appeared also to be an hour-glass contraction of the bladder, the lower portion had been occupied by the stone removed; the upper portion yet contained a thin stratum of calculous concretion, spread over the surface of the bladder, and firmly adherent to it. As the patient had been on his seat about forty minutes, and had suffered considerably from the last attempt to clear the upper portion of the bladder, I put him in bed to wait the result of further treatment: gave him sixty drops of laudanum, directed warm fomentations over the pubis, if there should be pain or tenderness. Left him 6 o'clock, P. M. 22d July.

23d, 9 o'clock, A. M. Found he had rested well the past night; suffered little pain; urine had passed freely through the incisions; many small pieces of calculi had passed. Pulse 90. Directed mucilages and light food; laudanum if there should be pain; his head and shoulders to be well raised; to rest on his back, with his knees drawn up and spread as much as possible.

24th. Found him under slight fever; some pain and tenderness over the region of the bladder. Pulse 95. Coated tongue; bled twelve ounces; gave oil ricini, to be followed after operation with Dover's powder; directed warm fomentations and laudanum as before.

25th. The oil had operated, had taken two powders, six grains each, and fifty drops of laudanum. Slept the greatest part of the night; many fragments of calculi had passed off. Pulse 95. Discharge of fetid matter, mixed with urine, through the incision; passed into the bladder a silver probe with a broad flat point; discovered much calculous matter near the fundus of the bladder, and

some loose near the neck. The probe was coloured black by the contents of the bladder. Turned the flat end of the probe in the form of a hook: introduced it several times, and drew out many pieces of calculi: fastened on several pieces high in the bladder, which, on attempting to remove, gave the patient much pain; introduced a female catheter, and injected through it one gill of elm tea. Gave a powder composed opii camph., emet. tartar, and calomel; directed fomentations as before.

26th. Several pieces of stone had passed off. Some appeared to be those I had attempted to remove the preceding day with the hook; they were tinged on one side with blood, and covered with a membranous substance: considerable discharge of fetid matter; directions as the day before.

28th. Injected mucilage, passed the hook, and drew out several pieces of calculi: bowels open: had slept well; little fever: disposed to take solid food: less matter and fetor. When his knees were brought together, his urine passed through the urethra, finding there was a large quantity of calculous matter yet remaining, and fearing the incision would close too much for its removal in the manner I had adopted, I procured a silver scoop.

29th. Injected and introduced the new instrument into the upper portion of the bladder: on withdrawing it, I found the bowl filled with calculi and morbid membranous substance. I introduced this instrument again twice, with a similar result, the introduction at first, was rather difficult through the neck of the bladder, and gave the patient some pain.

I visited the patient daily, injected mucilage, and introduced this instrument, two and three times each day, until the 6th of August, and brought off more or less calculous matter each day. At this time a large fragment was brought down to the neck of the bladder, being too broad to pass, I disengaged the scoop, and left it. I procured the forceps, and the next day, with them, broke the calculi in pieces, and removed them with the hook. On passing the probe to the fundus of the bladder, I found many pieces yet remaining; the pain produced was remedied by laudanum, and fomentations, powders of calomel and opium continued.

8th. Found the patient had voided several pieces of calculi: was much discouraged; said "*his bladder was a gravel pit*," and that he *could not be cured*; persuaded him to persevere; introduced the scoop twice, and brought down several large pieces; found the state of the bladder much altered, its contraction on the instrument distinctly

felt, and much less jarring sensation from stone to the instrument, than at any other period.

9th. Found several small pieces had passed; introduced the scoop; found but few small pieces which were removed; sounded afterwards with the probe and found none.

10th. No calculi had passed, patient expressed great satisfaction; said "*he felt around the bladder as he used to five years before*;" sounded, and found no stone; brought the knees together and confined them.

11th. The patient passed part of his urine through the urethra. Symptoms favourable; passed a sound through the urethra into the bladder. Strong contractions of the bladder upon the instrument, from this period the incision closed rapidly; the patient sat in a chair occasionally, took solid food, and recovered his strength daily. On the 20th, the urine was retained five and six hours in the bladder, and passed wholly through the urethra, with all the healthy sensations.

The patient discharged. Saw him on the 20th of October; he had rode on horseback thirty miles the preceding day. Said he was perfectly well.

The whole weight of the calculi taken was five ounces, three ounces by the first operation, and two ounces by subsequent removal; the whole was composed of the phosphate of lime; the portions removed from the coats of the bladder, were about the eighth of an inch thick, (I send you a piece enclosed,) easily broken or crumbled with the finger.

I will not trouble you with many remarks; there is one circumstance worthy of notice in the symptoms attending the case previous to the operation, viz. there never had been the most prominent symptoms of stone till the last weeks of his sufferings. Such as total suppression, and bloody urine, and extreme pain after voiding it. There was probably a morbid state of the mucous coat of the bladder in the first place, which occasioned the calculous formation upon it, agreeable to the opinion of Mr. Brown, and its action or contractile power was partially suspended. The distinct portion of stone resting near the neck of the bladder formed afterwards.

I am sure the operation of lithotomy would not have succeeded in this case. I attribute my success principally to a very free incision through the external parts, keeping it open, and to the final introduction of the silver scoop. This instrument is well calculated to detach portions of calculi, as well to remove them from the bladder. The bowl part is made deep, and the front edge thin and much turned up in the form of a hook. In common operations, for stone of a small size,

or on a young subject, this instrument can be made very useful for extracting.

Gentlemen present at the operations—A. G. DE CAMP, Surgeon U. S. Army; IRA A. SMITH, M. D.; DR. P. MAXWELL, U. S. Army; RICHARD CLARK, M. D.

Watertown, Jefferson Co. State of N. York, Feb. 13th, 1832.

ART. IV. *Case of Hernia with Obstruction, (engouement,) in which there was no Evacuation from the Bowels for Seventeen days.* By JOHN J. ABERNETHY, M. D. of Hartford County.

I WAS called August 3d, 1832, to visit David Crane of East Windsor, twelve miles from this city, with irreducible, obstructed, inguinal hernia.

The patient was eighty-four years of age, of temperate habits, and good constitution. It appeared that he had had hernia for many years; it had caused no inconvenience; he had never worn a truss. The intestine had usually descended a number of times every day, but he never found any difficulty in reducing it until Friday, July 20th, 1832, when, after labouring some time during the afternoon, he found the herniary tumour in the left groin about the size of a goose-egg, stretching down into the scrotum, causing some pain and general uneasiness.

He immediately resorted to the manipulations by which he had always previously succeeded in reducing it, but at this time found the herniary tumour was larger than it had formerly been, and as he continued his efforts at reduction, they caused considerable pain. He now sent for his physician, who administered a tobacco injection, and again had recourse to the taxis, but in vain; he then directed cold and afterwards warm applications to be made to the part.

Sunday 22d. Gave half an ounce of castor oil, which produced nausea, some tumefaction and tension of the abdomen, but no cathartic operation. After the exhibition of the oil he experienced some pain and tenderness in the herniary tumour; all medical treatment was then suspended, and the last mentioned symptoms disappeared. His diet consisted of chicken broth and beef tea, which were also administered from time to time per anum.

I visited him Friday, August 3d; found him tolerably comfortable, in no pain, had no tenderness or particular tension of the abdomen,

yet some fulness of the bowels, having had no evacuation of *faecal matter* since the descent of the hernia, July 20th. The hernia could not be reduced at this time; there had been but slight symptoms of inflammation, and none of gangrene. Flatus occasionally passed off from the bowels, and by pressure air could be made to pass out and into the portion of intestine contained in the hernial sac; but the passage of the *faeces* was entirely interrupted.

I now recommended an immediate operation, which however was not consented to, some of the friends objecting, and the attending physician being absent. Visited the patient again on the afternoon of Sunday, the 5th, when there having been no material alteration in the case, he consented to have it performed.

I was assisted by Dr. E. F. REID in the operation, which was performed in the usual way. Upon opening the sac, it was found to contain a portion of the colon, which exhibited a healthy appearance; adhesions of considerable firmness had formed between the intestine and the sac: on enlarging the opening at the external ring, and separating the adhesions as far as necessary, the hernia was at once reduced. The incision was brought together by three sutures, straps of adhesive plaster, lint, light compresses, and a T-bandage were applied: the patient put to bed: sixty drops of laudanum were immediately given, and in an hour and a half a pill containing one grain of opium. He bore the operation well, complained of but little pain after it was completed, and passed a comfortable night.

Injections of infus. eupator. perfoliat. mur. soda, and molasses, were directed to be given every three hours during the evening and night. Monday morning 6 o'clock gave half an ounce of castor oil, and about 7, he had a natural and copious evacuation from the bowels: this being the first stool he had had for at least *seventeen days*, afforded him much relief.

I then left him doing well: and have since received the following communication from the physician who attended him, dated East Windsor, Sept. 4th, 1832.

SIR—In regard to the case of Mr. Cran, I have nothing particularly interesting to communicate, except the fact of his recovery without any unfavourable occurrence subsequent to the operation.

He remained very feeble during the first week, sleeping most of the time, the pulse extremely small and frequent, the countenance pale and sunken, the tongue densely coated with fur, and the fauces filled with thrush.

His treatment consisted in giving opium in small doses, every four or six hours. Spirit every hour or half hour, sufficiently freely to keep him warm, as he was much inclined to coldness. A solution of quinine was exhibited in

doses equal to one-third of a grain every two hours. Animal broths, custards, coffee, &c. were given hourly, in such quantities as he could be induced to take them.

Alvine evacuations were produced by enemata about once in three days. About a week after the operation, the tongue became clean, the fauces were relieved of their thrush, his breathing, which had been irregular, and accompanied with much rustling, became natural, and the mind, which had during the first week been almost entirely broken down, seemed to recover its strength in some measure.

The wound, which had exhibited rather a pale aspect, otherwise healthy, now seemed to heal rapidly, this, of course, was treated with simple dressings. After this, his treatment remained essentially the same, except that the tonics, cordials, and nourishment, were given less frequently, and in larger doses. The anodynes were dispensed with, except at night.

On the 22d of August the wound appeared perfectly healed; and on the 28th I saw him walking about his room.

Yours, &c.

A. WATSON.

It is well known that the great danger to be apprehended from the incarceration of a portion of intestine or other internal part, is inflammation and its consequences. The *obstruction* to the faecal passage is quite a subordinate consideration, excepting as it may increase the inflammation, as is here clearly demonstrated.

Hartford Co. Sept. 21st, 1832.

ART. V. *An Account of the Influenza of 1831-2, as it occurred in Burke County, Georgia.* By A. C. BALDWIN, M. D.

THE influenza as it appeared within the sphere of my practice, during the winter of 1831-2, and in the spring ensuing, presented a variety of symptoms, in different persons. This difference may have arisen, and probably did arise from the unsettled state of the weather during the time of its prevalence. No winter within my remembrance was more severe, nor do I recollect to have witnessed a spring more remarkable for the great and sudden changes of temperature. Hot, cold, and temperate weather, succeeded each other in such quick succession, that it was almost impossible to conjecture from to day what would be the state of the weather on the morrow. Nor were the changes of temperature alone remarkable. A clear, pleasant, and promising morning was frequently followed by a cold, wet, disagreeable evening. These sudden changes, as might have been expected,

were productive of much indisposition among the inhabitants of this section of country, and the diseases which prevailed, were generally inflammatory. Bilious pneumonia was of common occurrence, as were diseases of the lungs generally. Cases of this character were easily managed, when assistance was called for in time to allow the free use of the lancet, and a recourse to other depleting remedies; but, if neglected at the forming stage, were frequently fatal in their terminations.

The influenza, as it appeared in many cases, was so mild, as to exhibit little more than the common symptoms of catarrh, and required little or no attention. Many affected in this manner, after suffering a temporary inconvenience, recovered in a few days without the use of medicine; while, in others, the disease assumed a more alarming aspect, and called for the most prompt and energetic measures for its subjection. No symptom, with the exception of fever, was universally present. As the disease appeared among the people generally, the following symptoms were observable, although a great majority of them were absent in different cases: coryza; cough; a general soreness over the body; fever, preceded by a chilly sensation; a pulse at first soft and frequent, afterwards hard and full; pain in the head and eyes; shooting pains through different parts of the body; pain in the back of the neck, in the small of the back, and in the chest; tenderness of the epigastrium; sickness at the stomach; occasionally, inflammation and pain of the tonsils, with impeded deglutition; delirium; spasm of the muscles of the legs and arms on attempting to move the body, in those cases in which there was much general soreness; tongue furred, sometimes white, at others of a dark brown colour; offensive breath; and great restlessness.

When a case of any severity was neglected, it developed the following symptoms in its progress: the pain in the head and eyes became intolerable; the face became flushed; the eyes red and had a wild appearance; there was furious delirium; and the patient would frequently scream aloud from the violence of the pain. These symptoms having continued for a day or longer; comæ supervened, and the patient would lie quiet in bed, with the head thrown back; the mouth open; the eyes fixed, and the pupils dilated; the tongue dry and dark; with laborious breathing. In this condition he would remain for many hours, the breathing growing more and more laborious until he expired. Life appeared in these cases to be prolonged, and the patient kept up for some time by the excitement of the fever. Death, in all cases, appeared to result from congestion of the brain or of the lungs, and frequently from both.

The fever which attended was remittent, and was preceded by a chill. Some had but one chill, and that at the commencement of the disease; others experienced a chilly sensation before each exacerbation of the fever. The remission took place in the morning and in the evening. Patients were worse during the day. The alleviation which was experienced at night, I attributed to the effect of depleting remedies administered during the day.

Generally speaking, the disease if properly managed was not dangerous; and being inflammatory in its character, the indications to be fulfilled were obvious to the most careless observer. But when neglected, or when a temporizing plan was depended on, the effects on the brain or on the lungs, rendered the result doubtful; and frequently was followed by a fatal termination! At the commencement of an attack, there was no criterion by which we could judge with certainty, what organ would suffer most during the progress of the disease. An organ, apparently not implicated at the forming stage, occasionally became the chief seat of the disease, as was exemplified in the following case, in which the lungs suffered severely from inflammation. A lady in fine health, was suddenly attacked during the prevalence of the epidemic, with a violent pain in the head, succeeded by fever and a distressingly sick stomach. No other disagreeable symptom was present. The pulse was slow and frequent. To alleviate the pain in the head, venesection, or generally resorted to, and an emetic of ipecac, and tartarized antimony was administered to relieve the stomach. Temporary benefit followed the plan pursued; but as the affection developed itself, other symptoms were observed to make their appearance, showing that the brain and stomach were not solely the parts implicated in the morbid derangement. A stoppage of the nose, accompanied with a distressing cough, were the succeeding symptoms, and the cough continued more or less during the continuance of the disease. The symptoms which occurred afterwards were those pointing out an involvement of the lungs, and the chest formed the chief seat of suffering. A pain in the side, augmented by coughing, and attended with pain in the back, and in the back of the neck; a high fever; a hurried pulse; the face at times flushed and at times purple; and a copious expectoration, the matter spit up at first of a whitish colour, and afterwards yellowish or of a dark brown, were the attendant symptoms. This case was successfully managed by the repeated use of the lancet; by blistering the chest; keeping the bowels in a soluble state by the administration of aperients; and by drinking plentifully of mucilaginous drinks.

Four cases came under my observation which commenced suddenly

with a pain in the foot, three of which recovered, and the fourth terminated fatally. The fatal case was one of considerable violence from its commencement, and as it did not submit to the plan of treatment which had proved successful repeatedly in other cases similar in character, it may not be improper to give an account of the appearances which it presented during its progress, and of the plan of treatment which was resorted to in my attempts to subdue it. The patient was attacked suddenly whilst engaged in his ordinary business, with a violent pain in the foot. This after a few hours disappeared, or rather seemed to have passed into his leg. From thence he discovered it had passed into his back. After this he had shooting pains through different parts of his body, till at length he experienced a violent pain in the head. At this time I was called to see him, and learned the particulars of his case as stated above. The pain in his head was seated over the left eye, and extended to the frontal sinuses; and together with a pain in the eyes, at this time constituted his chief suffering. He had a high fever. His veins were very much distended, and his pulse was remarkably full and hard. His indisposition was of several days standing before I was called on to prescribe. The first remedy resorted to was the lancet; he was bled almost to fainting, and was directed a saline cathartic. On the morning following, he informed me that his medicine had purged freely, and that he felt some little relief, although the pain in the head was very distressing. His pulse was still full and hard, and his fever was but little diminished. A second bleeding was determined on, and as much blood was taken from the arm as had been on the day preceding. The purging was directed to be continued, and cold applications were ordered to be kept to the head, and hot bricks to the feet. During the evening of the same day: I was again called to visit my patient, and on my arrival learned that his nose had been bleeding, and that the pain in the head and eyes was greatly augmented. His pulse being still hard and full, and he still had a high fever, I determined to try once more the effects of the lancet; and to make as powerful an impression as possible on the circulation, opened a vein, making a large orifice. As the blood was flowing, I kept my finger upon the pulse, and discovered after a short time that it sunk rapidly. About twelve or fifteen ounces of blood was lost at this last bleeding, and although the patient was faint and relaxed from its influence, no alleviation of the pain could be discovered. The pulse was controlled, but the disease remained unchanged. In a short time the pulse became nearly as full and hard as it had been before the bleeding; but, as the abstraction of blood did not appear to be followed by any improvement,

I determined to lay aside my lancet, and to trust the case to moderate purging, blistering the back of the neck, cold applications to the head, and hot bricks to the feet. Added to the remedies already enumerated, I opened the temporal artery; but it did not bleed much, nor was the bleeding followed by any improvement. Not to be tedious, it may be stated that the medicines administered to operate on the bowels acted well, and that the blister drew very well; but that no relief was experienced; the disease continuing to progress for the worse. On the day following the patient became delirious, and could not be kept in bed. For about eight hours he continued struggling to escape from his friends who were endeavouring to prevent him from leaving the house, and at the end of that time he was almost exhausted, becoming in a short time comatose. In this condition he lay for about twelve hours, in a high fever, attended with laborious breathing, and then expired, apparently from congestion of the brain. For some hours before death, he never moved his left arm or leg, although he frequently moved the arm and leg of the other side. The death of this patient I attribute to neglect. Had assistance been called for a few days earlier, and the same plan which was pursued afterwards, been put in force, there is but little doubt, judging from its success in other cases of a similar character, that the result would have been different. But as it had been delayed to so late a period, the brain became too much implicated in the disease, to be relieved by the depletion instituted in the case; and it would have been unsafe, and possibly fatal to have pushed it to a greater extent.

Having entered so minutely in the treatment of the influenza, as it appeared in the two cases cited above, it is scarcely necessary to say more on the subject. A general summary, however, may not be improper. At the commencement, if the case was at all violent, bleeding was my chief dependence, and in no case did I ever repent its employment. Frequently have I regretted my inability to resort to it, or of using it with too sparing a hand. Purging actively after bleeding, and keeping the bowels in a soluble state subsequently, was my practice in the management of all cases. For this purpose calomel, oil, or salts, were the medicines employed. Mucilaginous drinks, or expectorant syrups were administered in those cases in which the cough was troublesome. After free depletion, blisters were occasionally used. Opium was always objectionable, and if given in the early stages of the disease, was always more or less injurious. After free evacuations, its employment to relieve particular symptoms, or to procure sleep was allowable.

St. Clair, Burke County, Georgia, May, 1832.

ART. VI. *A Case of Spinal Irritation.* By ROBERT J. TURNBULL,
M. D. of Charleston, S. C.

WE know of no one medical fact, of recent observation, which has illustrated the nature of so many diseases, and those too of an anomalous and obscure character as the above condition of the spinal cord. When reflecting upon those maladies which have been classed under the vague and indefinite appellation of *nervous* or *functional* diseases, may we not indulge a rational hope, that the limits of these classes are about to be narrowed down to the smallest compass, and that our *divine art* is about to be rid of terms, which are but so many evidences of our ignorance of the seat of disease; and may we not also augur the happiest results from the work already begun? We find ourselves no longer satisfied with the vague illustration of angina pectoris, as a *functional* disease, or hysteria, as dependent upon a *general derangement* of the nervous system. This "*airy nothing*" has at length received "a local habitation and a name." As there may yet exist some, who are ignorant of the existence of this affection of the spine, and consequently of the rational interpretation of those phenomena which declare its existence; as also those who, though not ignorant of such a morbid condition of the spinal cord, yet do not acknowledge the symptoms which have been deemed indicative of its existence, as referable to such a condition of the spine, we cannot but flatter ourselves that a case, so marked as that which we are about to record, will prove highly satisfactory, both as to the existence of such a disease—the propriety of addressing our therapeutical agents to the spinal column alone—and also of their prompt remedial agency when thus applied.

In the month of August, 1831, I was requested to visit Harriet B. aged nineteen years, milliner by occupation, who had just returned from the country where intermittent fever prevailed. I found her with all the symptoms of an intermittent in its second stage; but upon inquiry, I learned that there had preceded no marked chill. For want of better information as to the history of the case, and particularly as the physician in the country had pronounced the similar attacks which she had experienced, of the character of intermittent fever, I treated her present disease as such; and convalescence was the result. I now learned that she had been frequently subject to this fever, about the catamenial period, which fact, taken in connexion with that already mentioned, viz. that there had preceded no marked chill, at once gave me an insight into the nature of her com-

plaint. I now naturally interpreted the fever, as an effort of the system to bring about this secretion; and again upon inquiry, I learned that the irruption of the menstrual secretion was synchronous with the subsidence of the febrile symptoms. Upon inquiry as to the quantity and performance of this function, I was furnished with all the symptoms of dysmenorrhœa and menorrhagia; and I was also informed that they had long existed.

Being temporarily relieved of the uterine complaint, I was now consulted, as to certain anomalous symptoms, which had existed for *five years*, and had baffled the skill of many physicians, and some of them, our most eminent. These symptoms were *pain in the right hypochondriac region*, pain in the *right shoulder*, pain *shooting up the neck* and back part of the head, also a *hacking dry cough*, which were all aggravated towards evening, continued throughout the night, and depriving of all sleep, until towards morning, when there usually occurred a mitigation of the symptoms. These pains were represented as excruciating, and my patient expressed herself willing to submit to any treatment, however tedious, which would promise hopes, even of partial relief—the idea of total relief was too delightful to anticipate. From these symptoms I very naturally thought, that I had to encounter a chronic hepatitis, associated with a general derangement of the chylopoietic viscera; and to which general derangement, I was disposed to attribute the derangement of the functions of the uterus. To remedy the first, all the usual articles of the materia medica were put in requisition, both locally and constitutionally. To induce a healthy condition of the uterine functions, such advice was given, as tended to improve the general health, but without the slightest relief.

The reflexion which the above failure induced, led me to refer the complaint to the class neuralgia, as had been recently illustrated by TALLE and others; with these, I now began to suspect that the cause of the disease was to be sought for at the origin of the nerves affected. Pressure was accordingly made upon the spinous processes of the vertebrae, throughout the whole column, and the result was pain, about from the second to the sixth cervical; about the fourth or fifth dorsal, and again about the last dorsal, or first lumbar vertebrae. This examination satisfied me as to the spinal origin of the disease, and upon a more minute inquiry as to the nature of the pains, I was informed that the pain in the head was *superficial*, and *ramified* over the occiput and under the scalp; that the pain in the shoulder was that of “a knife piercing the part;” that the pain in the side was in the *course of the rib*, which was evinced by laying the index finger

parallel to that bone, when asked as to the kind of pain which she experienced. She had some months experienced much pain in the lumbar region, and upon inquiry, she informed me, that at that time she had experienced numbness in the lower extremities; and that for a few days back, she had experienced a *weakness* in her *right arm*. These symptoms determined me as to the treatment which ought to be pursued, and I accordingly applied three moderate-sized blisters over the spots tender upon pressure. Great constitutional irritation supervened, with an aggravation of all the local pains, particularly that of the right shoulder; but the catamenia making their appearance at this time, I was at a loss to determine, whether the aggravation of the symptoms was attributable to the action of the blisters upon a peculiarly sensitive skin, or whether referable to the disturbed condition of the circulation, dependent upon the menstrual effort. Accompanying this condition of the system, there was involuntary *twitching* of the body, but *chiefly* of the *right arm*. All these aggravated symptoms subsided with the eruption of the catamenia, and the abstraction of the blisters. The treatment was now omitted for a week or ten days.

Upon again visiting my patient, I found that the disease had progressed, and a few days after, the *weakness* of the arm was so great, as to preclude its use, even at her meals. When the hands were put into cold water, pains darted up the arm. I now determined to treat the case, *de novo*, as spinal irritation; and I commenced with a liniment composed of equal parts of olive oil and spirit of turpentine, which was afterwards increased to three parts turpentine, and finally to four parts turpentine to one of oil. This liniment was used three and four times a day, with marked benefit. A mitigation of the pains followed its use, and the arm was so much strengthened, that upon one of my visits, I found her using it *violently* in drying a large tea-board. I now began to entertain hopes of a cure, to accomplish which, I began with the more stimulating application of *tartar emetic ointment*, which was used with progressive benefit, until, contrary to my directions, the remedy was pushed too far; and great constitutional irritation was again set up, aggravating all the symptoms, and accompanied with the involuntary *twitchings* of the body and *right arm*. These subsided with the subsidence of the pustular inflammation; and a more moderate use of the ointment continued to mitigate her sufferings, and eventually relieved all those symptoms which had existed for more than five years without intermission. She now tells me "that all her pains are gone, and she cannot express how much better she feels."

Though relieved of the symptoms dependent upon the irritation existing in the spinal cord, the dysmenorrhœa and redundancy of the catamenia were not materially affected; in connexion with which, however, it ought to be remarked, that the lumbar portion of the spine, tender upon pressure, was much neglected in the treatment, owing to the inconvenience of making the application. She never observed the horizontal position. This, we believe, unnecessary, when the disease exists in the cervical or dorsal vertebræ. In the lumbar vertebræ, however, owing to the superincumbent weight, as also to the greater latitude of motion, the recumbent posture, no doubt, will be productive of great benefit. In making our applications to the spine, care should be taken, lest we produce a too general and intense an inflammation in the vicinity of the original affection, which will not fail to extend itself to the subjacent spinal cord, and thus augment that irritation which it was our design to remove. We cannot take leave of this case, without making some reference to the connexion and dependence of the symptoms upon the morbid condition of the spinal cord. These, we have already said, were pain in the back part of the head, ramifying over the occipital portion of the occipito-frontalis muscle—pain shooting up the neck—pain in the shoulder, in the hypochondriac region, and in the course of the rib; also a troublesome dry cough. Let us now connect these symptoms, with the origin and distribution of the nerves arising from the diseased portions of the spinal cord.

The sub-occipital or tenth pair of nerves, arises from the medulla spinalis, between the occiput and first vertebræ of the neck, and divides into two branches: the posterior gives nerves to the deep-seated, small muscles arising from the first and second vertebræ and the occiput, as also to the *complexus* and *splenius* muscles, on which we must locate the darting pains in the neck. The second cervical, issuing from between the first and second vertebræ of the neck, divides into two branches, the superior inosculates with the sub-occipital nerve; the posterior branch likewise supplies the *complexus* and *splenius* muscles, and communicates with the first cervical; its branches also extend “over the occiput, even to the summit of the head.” The fourth cervical divides into two branches; the first goes to form, with the third and fifth cervical nerves, the *phrenic nerve*, and sends also a branch to the sympathetic, to the *integuments* of the neck and shoulder, and to the *supra* and *infra-spinatus muscles*; the posterior division of this nerve passes to the muscles of the spine and shoulders. This distribution of nerves arising from the diseased portions of the spinal cord, as evinced by the pressure made, will fully elucidate the pains

in the neck and shoulders. The origin of the phrenic nerve, from the third, fourth, and fifth cervical nerves, the two first vertebræ of which were tender upon pressure, will account for the convulsive action of the diaphragm, giving rise to the "*dry, hacking cough*." It becomes us however to say, that this cough yielded to antimonials, and that too, before any application was made to the diseased spine. The axillary plexus is formed by the fifth, sixth, seventh, eighth, and first dorsal nerves. The nerves of the arm being derived directly from this plexus, whose origin we have seen, was diseased, as evinced by the pressure made upon the fourth and sixth vertebræ, will afford us an explanation of the pain in the arm and its subsequent weakness—I might say paralysis. It remains but to account for the pain in the *course of the rib*; the reader will, no doubt, anticipate us in saying, that we refer this to the intercostal nerve, coming from between the fourth and fifth dorsal vertebræ, which, it will be recollected, were tender upon pressure.

We now take leave of this case, hoping that its recital may prove as instructive to others, as it has been to ourselves—that it will be recollected for the future, that pain in the right hypochondriac region, accompanied with pain in the shoulder, is not a diagnostic of the existence of hepatitis; and that, under these circumstances, the patient ought to be examined as to the existence of the above condition of the spinal cord.

New York, 1832.

ART. VII. *Case of Premature Puberty.* By J. LE BEAU, M. D. of New Orleans. (Communicated in a letter to Dr. DEWEES.)

I TAKE the liberty to acquaint you with an extraordinary case of prematurity in a child, which fell under my observation in this city. Matilda H. was born of a white family in low circumstances, the 31st of September, 1827. She came into this world with her *mammæ* perfectly formed, and the *mons veneris* covered with hair, as much as a girl between thirteen and fourteen years old; when precisely three years of age the *menses* made their appearance, and have continued to reappear regularly every month until the present time, and as copious as any woman might have them—each period lasting four days. She is now four years and five months old; she measures forty-two inches and a half in height, French mesuré; her features are re-

gular; she has a rosy complexion; her hair chesnut colour; her eyes bluish-gray; she is what may be called handsome; the conformation of her body is very strong; her *mammæ* are now of the size of a full-grown orange, and the dimensions of the *pelvis* are, in my opinion, such as to enable her to bear children when eight years old, and very likely sooner. She constantly enjoys good health.

With sentiments of the greatest consideration, I have the honour to be, Sir, your most obedient and respectful servant,

J. LE BEAU, M. D.

New Orleans, May 31st, 1832.

We, the undersigned, physicians practising in the city of New Orleans, State of Louisiana, do certify that at the request of our brother, Dr. Le Beau, we called at the dwelling of the parents of Matilda H., where, after having attentively and minutely examined the said Matilda H., confirm all that is above expressed. In truth whereof, we have signed the present certificate.

FORMENTO, M. D.

DAVID C. KER, M. D.

JOHN LABATUT, M. D.

DASIT SENAC, M. D.

New Orleans, the 4th of June, 1832.

State of Louisiana.—Mayorality of New Orleans.

I, Denis Prieur, Mayor of the City of New Orleans, do hereby certify that the foregoing signatures are those of Messrs. J. Le Beau, Formento, D. C. Ker, J. Labatut and Dasit Senac, practising physicians of said city, and that full faith and credit is due to them as such.



In witness whereof, I have hereunto set my hand and affixed the seal of the Mayorality of said city, this eighteenth day of July in the year 1832.

D. PRIEUR, Mayor.

ART. VIII. *Cases Illustrative of the Application of Physiological Medicine to the Diseases of Louisiana, with Remarks.* By EDWARD H. BARTON, M. D. of St. Francisville, Louisiana.

THE following cases are offered as illustrative of the application of the physiological doctrine to the treatment of the diseases of the south. It is hoped, that thirteen years extensive practice in one of our sickliest regions, will be admitted as furnishing some claims to be heard, and render it unnecessary to offer any apology for presenting to my brethren the results of my experience.

I have deemed it best, not to encumber these cases with too many details, and have therefore confined myself to a general description of the case, with a succinct view of the treatment, and such remarks and inferences as the case seemed naturally to suggest.

CASE I.—*July, 1829.* D. aged forty, full habit of body, sanguine temperament, unaccustomed to the climate, was taken with a severe chill after being exposed to a rain on the 13th, which lasted upwards of twelve hours. Saw him in the forming stage of the fever, when he had soft, contracted pulse; violent vomiting, with discharge of much bile; great tenderness of abdomen; tongue red on edges, and furred in middle; hot, dry skin. Applied six cups to epigastrium, which at once suppressed the vomiting, relieved the cold chills still existing, and produced perspiration. Ordered mucilaginous drinks, and fomentations of the same to the abdomen. Saw him again in four hours. Had had no vomiting since cupped, though it had previously been incessant; fever much less; fine perspiration followed the cups; pulse full and developed. He had however pain in the head, and I therefore bled him twelve ounces, with relief. Ordered Seidlitz powder, and continue mucilaginous drinks and fomentations; fever soon subsided.

14th. Much better; no return of fever; continue treatment.

15th. Feels very well; discharged.

Remarks.—This is an ordinary case of bilious fever, severe in its incipient stage, and portending a violent attack, but cut short at once by the local depletion, applied as near as possible to the irritated organs; which arrested the disease in its first seat, and cut short the sympathizing consequences. The gall-bladder in this case had either, from the violent efforts of vomiting, thrown out its contents, or the liver itself had associated its action with the irritated stomach, and increased functional action had been the consequence. In either event, the local depletion had arrested it, either in the first seat, or the second. Though the ordinary course by an emetic, cathartic or calomel might have relieved in this case, by acting upon the secretions; yet the course of relief by revulsive secretion, still leaves the stomach, the receiving organ of the remedy, as well as the seat of the disease, in a state of irritation; and hence much more liable to repetitions of the paroxysm, which, in this case, was prevented by the total removal of the primary diseased impression, and the case cut short. The local capillary bleeding has all the advantage of the revulsion and depletion, and leaving still the important organ, the stomach, unembarrassed, and perfectly free to exercise all its reactive powers. Similar cases could be multiplied, were it necessary.

CASE II.—*June, 1829.* B. aged forty-eight, of a full sanguineous habit, dark complexion, had been taken with quotidian fever on the 16th, and had taken a cathartic of Lee's pills. I was called on the 18th, and found the patient in a chill, with pain in epigastrium, and in head, back, and limbs; glassy eyes; applied six cups to epigastrium—relieved chill almost immediately in the cold extremities. Fever afterwards lighter than usual. Advised mucilaginous drinks.

19th. Much better; ordered oil; chill much lighter; three cups to epigastrium soon relieved it; fever light.

20th. Fever very light. Drinks continued.

21st. Discharged.

Remarks.—This is also a very ordinary case, recorded to show the influence of local detractions of blood in the forming stage of fever—the chill.

CASE III.—*July 28th, 1831.* D. aged forty-two, of New Orleans, taken with malaise; chilliness; vomiting; severe pain in back, head, and limbs; great tenderness of epigastrium; glassy, muddy eyes; white, dry, fleshy tongue; high fever; pulse small and quick; and thirst. Cupped the epigastrium very freely, to open pulse and relieve general symptoms; then bled, and afterwards gave demulcents, and resorted to fomentations and enemata, with great relief.

Second day gave twenty grains of calomel at the solicitation of a professional friend; it purged him severely, occasioned jelly stools, prostrated him much, and produced cold extremities. There now ensued a violent double tertian, with a severe cold stage, with the additional alarming symptom, of the greatest difficulty in breathing and deep sighing; a large cupping, (ten cups,) to the epigastrium relieved these with surprising quickness, and with the sinapisms brought on the second stage. The paroxysms continued to return for several days with great violence, even after full restoration of healthy action in bowels and liver, indicated by perfectly healthy, full-formed evacuations, but were finally subdued by the free use of local bleeding. Solution of quinine was given after healthy secretion from bowels, liver, and skin, were restored, but to the aggravation of the case. The solution of arsenic, snake-root, and diaphoretics, had no effect in arresting the disease. Finally, local bleeding from epigastrium was resorted to again, and then the quinine answered.

Remarks.—The above case is given to show the influence of capillary bleeding from the epigastrium in one of our lightest grades of fever, with a strong tendency to form the algid fever, (cold plague,) of the country. One or two more cathartics, or doses of calomel;

would have accomplished it fully, by increasing the original irritation not relieved by revulsive *secretion*. Such then, though not fully formed, was the prototype of the great bug-bear of the country—the “cold plague,” in *nine cases out of ten a factitious disease*! The prompt local bleeding arrested the inflammatory congestion, upon which the difficulty of breathing and cold extremities depended; the other radiated irritations stopt it in its forming stage; and the termination of the case would probably have been much more rapid, but for the administration of the calomel. I have never seen alarming and violent symptoms relieved sooner than the gasping for breath, the vomiting, cold extremities, and hot glassy eyes were, by the cupping in this case.

CASE IV.—*September, 1831.* E. aged thirty-eight, of a delicate sanguine temperament, had been attacked with double tertian on the 3d inst. and taken the ordinary domestic remedies, calomel, oil, salts, &c. I was called to him on the 7th, and found him with high fever; delirium; great jactitation; pulse small and weak; yellowish, watery purging; great tenderness and tension of epigastrium; dryness of mouth and skin. Applied six cups to epigastrium; cold applications to head and abdomen after cups taken off; mucilaginous drinks and cooling injections. Called in two hours; delirium relieved; fever and thirst much less; perspiration. Continue treatment; and gave spt. nit. dulc. to continue the mild revulsive action on the skin.

8th. Much better; fever milder; treatment continued; ordered oil.

9th. Severe paroxysm, with delirium and cold extremities, which soon yielded to cups to epigastrium; tongue better.

10th. Ordered blisters to ankles, as a permanent revulsive to prevent by their absorbing influence the formation of a paroxysm; they acted freely also on the skin; no fever.

11th. Severe paroxysm; delirium; cold extremities; great restlessness; blisters dry; applied twenty leeches to epigastrium, and six to temples; cooling injections; cold to head; great and speedy relief from the leeches and restoration to consciousness; ordered blue pill, to act upon the secretions, every six hours.

12th. Continue pills and mucilaginous drinks; bowels open; but stools thin; no fever.

13th. Paroxysm severe; extremities cold; delirium, though its return was procrastinated several hours and thought he had escaped; epigastrium of a *bladdery* feel; applied twenty leeches to it, and six to temples; hot fomentations and frictions to extremities; in a few

hours, that is as soon as leeches fairly removed and bleeding over, consciousness returned. Pills stopped; and from this time there was no return of paroxysm, and convalescence was established.

Remarks.—The double tertian is the most ordinary fever in this climate—the alternate paroxysms being much milder. To arrest the disease it is not sufficient to break one link in the chain—it is then only converted into the simple tertian, with great liability to relapse into the double type. This was a case in which the symptoms were very severe and violent, occurring at the worst season of the year; and long before medical aid was called, as is usual, the common domestic remedies had done all to irritate, but nothing to relieve, by their secretory depletion. It exhibits in a remarkable manner the great power of local bleeding over, not only the cold symptoms, but the great tenderness and tension of epigastrium, the delirium and fever. The tension alluded to above, as distinct from tenderness and pain, is one almost always calling for local detraction of blood. I have seen the most marked influence from it recur in cases the most desperate and protracted; one of which is noted in Case VI. Small as was the quantity of mercury exhibited in this case, about ten blue pills in about a week, yet ulceration of the gums was the consequence and pyalism; these were not perceptible during the paroxysm, but in the interval were troublesome. This fact sufficiently proves it could have had no influence in arresting the disease.

CASE V.—*July, 1831.* M. aged thirty-five, of a sanguine temperament, taken with double tertian remittent on 3d, had been complaining of functional derangement of stomach and bowels for a month or two, and had repeatedly taken cathartic medicines and particularly calomel. Called on 5th, and found him with high fever; pain in head; frequent loose, yellow, watery stools; which continued to disturb him for about a week; tongue whitish; epigastrium tense and tender; some enlargement of spleen; pulse in paroxysm 130 to 140; in remission 100 to 120. Bled; cupped twice; gave light diaphoretics; emollient fomentations to abdomen, and injections; demulcent drinks; after a few days, free use of pil. hydrargyri every four hours. The disease continued until the 12th, notwithstanding the local and general depletion, light evacuates, enemata, &c., and though the gums and mucous membrane of mouth were somewhat swelled, sore, and some salivation. The fever continued to return with somewhat less violence to be sure; but pulse never under 100; diarrhœa but little amended; prostration of the forces considerable; tongue the same, and epigastrium tense.

It now became evident that the medicines that had been administered pretty constantly to act upon the secretions had failed; that if they had not increased the previous irritation brought on by a long course of irritating medicaments, acting upon an increased excitability, it was because they were accompanied with local bleedings, demulcents, fomentations, &c. A free ptyalism had no influence whatever in arresting the march of the disease; in fact, it was now evident there was too much and too deeply radicated a gastro-intestinal irritation to permit or effect secretion, and it was equally apparent that this impediment must be removed, or the patient must soon succumb; we had little to expect from secretory action alone in the crippled state of the forces; the local lesion must be awakened or eradicated, or the case was desperate. Nervous prostration was now too great to bear the cups, and twenty leeches were applied to the epigastrium, (on 12th,) with marked benefit; less fever and general irritation; slept better; secretions from liver and intestines darker coloured and more consistent. Pills omitted; continued other treatment.

13th. Applied twenty-five leeches to abdomen; the influence now was still more marked; pulse reduced below 90; febrile heat and irritation almost gone; stools thick and dark-coloured; abdomen become soft and pliable; tongue much better; skin soft and moist; countenance clear; but little further paroxysmal tendency; the pulse however kept up to from 90 to 100 about midday.

17th. Believing now that as the secretions were all restored, eyes bright, clear and natural, strength improving, appetite returning, and every other appearance of convalescence, that the pulse was kept up from cardiac irritation, which at first sympathetic, had become independent from continued irritation, a decoction of digitalis was administered; this had the effect in a day or two of lessening the irritation, and restoring the circulation to its accustomed slowness and impulse, and there was no further impediment to restoration.

Remarks.—This is a valuable case: cathartics, and especially calomel, had been pretty freely tried in it before medical advice was sought, with the effect of increasing the intestinal irritation, and producing free evacuations from the bowels, not only without abating, but really aggravating the fever; and it is probable that the indulgence in them may have been the first cause of its production—a popular prejudice existing, that if “the bowels are kept open, and bile prevented accumulating,” no fever can ensue, and they are looked upon simply as cause and effect: a rapid increase of all the symptoms induced him to call in medical aid; general bleeding was

carried as far as the pulse and symptoms of prostration rendered it prudent and safe; local bleeding ameliorated the paroxysms, and it was supposed that giving such medicines as act on the secretions would equalize excitement, and enable the recuperative powers of the economy to produce restorative reaction; it became evident, however, that the irritation had become too deeply radicated from the frequent repetition of the cathartics—the calomel particularly, producing most probably ulceration of the bowels—and hence then the final resort to local bleeding again; this brought it within the sphere of a safe secretory or reactive influence, and there was now no difficulty in establishing secretion and restoring harmony.

The cardiac irritation being evidently functional and insulated, was soon subdued; similar irritations of the heart from long-continued fever, are by no means unusual; they soon yield to remedies acting upon its organic sensibility; to call it fever, and to treat it, by cathartics, diaphoretics, &c. is hazardous in the extreme; the gastro-enteric surface is not in a situation, from its crippled condition, to revulse upon, and the irritation and debility is usually increased by it, and the danger of the case aggravated.

This case, and many similar might be presented from my case-book, is full of instruction; secretion can only take place at a certain point—minus or plus that point, and none ensues; no variation or grade of cathartic treatment ensures this point; depletion then must ensue from some emunctory to produce it, and there is none so safe or so much in our power as that from the surface of the skin.

CASE VI.—*July, 1829.* R. aged twenty-five, of a sanguine, nervous temperament, had been sick some weeks of intermittent fever, and for the last ten days, after repeated relapses with remittent fever; had been treated by calomel and purgatives, and the whole routine of domestic treatment, with a *perseverance worthy of success, and with a violence that did all it could to enforce it!* Finding it all useless, medical aid was sought.

I found him with hot and dry skin, except extremities, which were cold; coma, stupor of two days continuance; subsultus tendinum; tongue red and dry; fuliginous teeth; abdomen meteorized, and excessively tender; frequent watery, yellowish stools; colour of skin, bluish-green, which closely adhered to the muscles, and great emaciation. I applied eight cups to epigastrium, and blisters to extremities; warm mucilaginous fomentations to abdomen; mucilaginous drinks, which, in eight hours, restored him to his recollection,

and in a great measure equalized the circulation. On the ensuing day the cups were repeated. As there was still some stupor, and dryness of tongue, and diarrhœa, I ordered mucilaginous injections, and dressed the blistered surfaces with acetate of morphia in oil; he had now a good night's rest, and felt much better. The third morning the abdomen was much softer and no tenderness; the skin was becoming moist; the watery stools arrested; tongue moist. Continued drinks, fomentations, &c. adding a thin potation of arrow-root every two hours, and dressed blistered surfaces with quinine. He now gradually mended, the appetite returned in a few days, and no further difficulty was experienced but to restrain it.

Remarks.—Here then is a case of protracted *facitious* typhoid fever, so often made by treatment as much so as *bilious* symptoms in ordinary fevers—with radiation of gastro-enteritis to the encephalon—with the most desperate prostration and debility, which the ordinary treatment was rapidly carrying down that great road where such cases *usually terminate!* Could any thing be expected from cathartics, emetics and calomel in this case? From the intense-ness of the gastro-enteritic irritation no impression that was remedial could be expected from that surface; could it be supposed that they could relieve that condition of the stomach and intestines upon which indubitably all these phenomena depended, and from which they originated? Had these oppressed, irritated and phlogosed organs the power in their crippled state to call a sympathizing organ to their relief? could it be supposed that in their present weakened condition they could disembarass themselves by summoning some of their associating organs to their relief? Purge after purge had been tried in vain; calomel's boasted powers has spent its influence like the idle wind—they had only tended to add irritation to irritation; the intestinal exhalents poured forth their fluids without effect; the encephalic irritation expended its sympathizing influence in vain, without removing this deeply radicated inflammation; it was here then that local bleeding put forth its peculiar virtues in removing this ataxic state, by lessening the force of the action at the fons et origo mali, the associating organs were enabled to remove and equalize a less degree of action, and restore harmony.

I will now give a few cases of the yellow fever of 1829. By "yellow fever" is meant an epidemic disease of a malignant nature, and of peculiar type, differing in its symptoms from the ordinary fevers of the locality sufficiently to be easily detected; characterized this season pretty much as usual, by violent pains in the head, back and

limbs; severe and usually burping pain in the epigastrium; dull, red, muddy, idiotic eye, with a sensation with some as if dirt had been thrown into them; great soreness, tenderness and yellowness of surface; red, dry tongue; pulse not often over or as much as 100; usually 80 to 90, and full; coma; stupor; delirium, though in some instances so slight, as to be hardly sensible of it; the patients noticing but little; answering questions intelligibly; and at the period of convalescence, their sickness seeming like a dream to them; bleeding from the gums and nose, and terminating usually between the third and seventh days, though sometimes more protracted, and frequently by black vomit. These, it is to be remarked, rarely ever occurring in any one case, but they were the *usual characteristics*, and always a sufficiency of them were present to mark the specific character of the disease, and the epidemic law—making all diseases, during its prevalence, wear its livery.

CASE VII.—Nov. 1829. W. aged twenty-eight, of a delicate make and nervoso-sanguineous temperament, had been affected with a severe *simple gastritis* in the summer—recognised by red tongue, thirst, pain in scrobiculis cordis, particularly on swallowing solid food, glassy eyes and fever, as well also by the effect of mild mucilaginous ingesta, cupping to epigastrium, and emollient enemata. When taken with the yellow fever in this late period of the season, (having recently returned from the country,) *in addition to the above symptoms*, there was exhibited an universal yellowness of the cutaneous surface; delirium; dilated pupils; a dull, idiotic expression of eye; pains in limbs and head. Capillary bleeding had the effect of ameliorating, but could not subdue them: the general treatment pointed out above was also pursued, medical aid not being called until the third day. The fourth day was cold with frost, and on the sixth the patient died, with coffee-coloured vomiting. Permission could not be obtained to make an examination.

Remarks.—This case is more particularly given to exhibit the similarity and the difference between *simple gastritis* and the gastritis of yellow fever. The case made a very forcible impression upon me at the time, and was very influential in producing the opinion formerly stated. The occurrence of frost is almost always fatal to the cases on hand, unless very mild.

CASE VIII.—November, 1829. S. aged about thirty-five, sanguine temperament; taken with the usual symptoms above enumerated. In

this case the delirium was more than usually violent, lasting about forty hours, and the tongue entirely dry and red; by the use of free cupping and leeching, which were several times repeated, the first to epigastrium, the second to the neck and head, and most perseveringly applied, fresh ones as fast as the others filled, with cooling applications, acidulated demulcent drinks, and emollient injections, and fomentations to abdomen, the worst features in the case were subdued; then a small dose of oil, and a continuance of the treatment for a few days, put the case beyond danger; it lasted five days.

Remarks.—This was a case of marked severity, and evinced in a distinguished manner, the triumphs of persevering capillary bleeding in removing an inflammation of apparently the most desperate character, having every symptom of an early termination in death, occurring in an individual of very fragile, delicate constitution; the result of any other treatment upon such a stomach and head, the individual being unable to swallow, except the mildest drinks, it is not difficult to anticipate. The patient during her whole illness knew nothing of what had transpired.

CASE IX.—*Sept. 24th, 1829.* E. aged twenty, of delicate, sanguine temperament, and fair complexion, taken suddenly with the usual symptoms of marked violence. I saw her during the first hour, and found the characteristics of the disease very strongly marked; bronzed complexion; dilated pupils; dull, muddy eye; red tongue, and subsultus tendinum, and great tenderness on pressure at the epigastrium; bled and cupped very freely; light mucilaginous sub-acid drinks, cooling injections; fomentations to abdomen. On second day better, gave ten grains of calomel, followed by Seidlitz powder: the recurrence of fever afterwards was much lighter, and in three days she was convalescent.

Remarks.—This case shows the influence of active treatment at the commencement. The disease was met in its forming stage, and the symptoms indicated, that if not as promptly subdued, the utmost malignancy should be anticipated.

CASE X.—*October 4th, 1829.* R. aged about thirty, sanguine temperament, full habit of body, had arrived about a week since from the upper Missouri, with a boat-load of apples, &c. he being one of the hands. I was called to him on the 4th, the second day of his illness, in his boat, near ankle deep, with bilge water and floating rotten apples; without any comforts; with most of the above symp-

toms; viz. deeply-bronzed complexion, with blood oozing from his gums; light fever; pulse 80 and full; eyes muddy, glassy, and idiotic expression, with very tender abdomen. He was very freely cupped and treated as above, which was repeated for three days; five grains of calomel was finally given him, and a light dose of oil. In the course of the treatment, he became perfectly yellow. On the second day the blood stopped oozing from the mouth. On the fourth day so much better as to be removed to the bank, and his convalescence was rapid, though the yellowness was some time in entirely subsiding.

Remarks.—The above exhibited the marked influence of local depletion in arresting that violent inflammation of stomach and intestines, and great ganglionic system in its early stage, which characterize, in a remarkable degree, the prominent symptoms, as well as post mortem appearances of yellow fever. The above was an instance of great malignancy, and its rapid yielding to the new treatment was as astonishing as it was gratifying. He had the poorest attendance, and was exposed most of the time to the disgusting effluvia of his offensive boat.

These were cases of those unhabituated to the climate, and selected on that account to show the effect of the treatment where there was no amelioration from climate—the three first had been here but a short time—the last had just arrived.

ART. IX. *Description of an Instrument for Venous Injection, by which the introduction of Air may be prevented.* By J. MAURAN, M. D. of Providence, R. I.

WE were early persuaded, that a part of the failure from the “venous injections,” which have been resorted to for the promotion of reaction in aggravated cases of asphyxiated cholera, has arisen, (under the circumstances,) not so much from the nature of the operation, as from the manner of its performance, through the imperfections of the apparatus employed. This opinion has been subsequently fortified by the observations of Dr. FRANCIS, of New York, in a very interesting letter to the chairman of the Medical Board, Savannah, on the absorbing topic, wherein he states, that “in the few autopsic examinations of subjects after venous injections had been employed, great cerebral congestion has been found, and air within the heart,

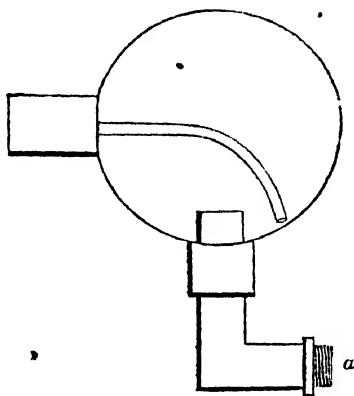
mesentery, and large blood-vessels;" and also by his further allusion to the horrors of a death, after the injections, which, he remarks, "are too terrific for delineation, even by a Fuseli." Are not the results above quoted, mainly the consequence of the presence of air in the blood-vessels?

From a perusal of an interesting communication by Prof. WARREN of Boston, illustrative of the appalling effects of such an accident on the system, as fully reported in the last No. of your Journal, and in the Boston Medical Magazine, we are still more of the opinion that our first impressions were correct. Air in the heart and blood-vessels, and sufficient in quantity to be perceived and noted in post obit examinations! It certainly did not exist in a free state in the blood, nor could it have been absorbed by the liquor, and afterwards disengaged, and thus rendered free; the temperature 113° of Fah., at which it was injected, precludes the possibility of such a phenomenon. Whence came it then, but through the imperfections of the instruments employed? I allude not to the more recent, very ingenious arrangement, (the barometer tube, &c.) of M. DEPEYRE, of New York, and adopted by him to avoid the very terrific effects above described—an instrument admirably calculated to avoid the introduction of air, and not otherwise objectionable than from the manifest inconvenience of its use, and want of portableness.

Air being inadmissible to the blood-vessels, though in ever so small quantities, without imminent danger to life in a healthy state of the functions, how necessary must it be to exclude it altogether, in an operation intended for the relief of that state, where the vital and physical powers, (extremely prostrated and reacting tardily,) are but feebly calculated to resist even present disease, much less that superinduced artificially by the very means put in requisition for effecting said relief.

Our object in addressing you, is to communicate for insertion in your widely circulated journal; the plan of an instrument for venous injections, which is deemed to be eminently calculated for general use, being *safe*, convenient, and portable; and if its publication, by eliciting attention to the subject, should in any degree subserve the purposes for which it was intended, the ends of the writer will have been fully attained. From the experiments which have been instituted by LATTI, CRAIGIE, and MACKINTOSH, abroad, and those more recently performed in this country, we cannot longer doubt the recuperative effects of proper and judicious venous injections in aggravated cases of asphyxiated cholera; nor will their use be limited,

it is conjectured, exclusively to this disease; but may become eventually a beneficial adjuvant in other diseases which, resisting the ordinary methods of treatment, would otherwise be abandoned to the powers of the fell destroyer. Annexed is a plan of the apparatus proposed, which consists simply in the addition of a silver inserting tube,* and a glass air-chamber, to the "improved domestic instrument of MAW," (with which every practitioner and private family is, or ought to be supplied,) or to the more complicated stomach and injecting pumps of READ and others.



Method of use.—Adapt the screw *a* to the syringe, and the part *b* to the flexible tube, then, (the pump being placed in the liquor to be employed, the stop-cock of the inserting tube freely opened, and the tube inclined upwards,) by a few strokes of the piston, the expulsion of all the air is thoroughly effected, as will be evinced to the operator by the uninterrupted and silent jet. Having now the air-chamber nearly, and the remainder of the apparatus completely filled with the liquid, close the stop-cock so as to allow but a guttatum emission, and insert with care the extremity of the tube into the vein previously prepared for its reception. The contained fluid being under compression, and *constantly flowing* from the point of the instrument during its introduction, all admission of air into the vessels is thereby effectually excluded. Another advantage resulting from the stop-cock, which should be noticed, is the perfect regulation of the current during the process of injecting.†

Providence, Sept. 15th, 1832.

* I have occasionally terminated the inserting tube by a small bulb, say half a line in diameter, which I prefer to the oblique point.

† While upon the subject of cholera, I cannot avoid stating the fact, that all the cases which have taken place here, (say about twenty-five in number, and two-thirds fatal,) go to "*retro*" absolutely the subject of *contagion*, either immediate or contingent, as applied to this disease. Occurring in subjects having no acquaintance or communication whatever with each other, in different grades of society, in extreme parts of the city, attended almost invariably by different physicians and nurses, and all traceable to manifest errors and imprudence in diet, or to gross exposure. I state these facts with confidence, having

ART. X. *Extracts from the Case-book of* GEORGE T. MARTIN, M. D.
of Denton, Maryland.

CASE I. *Incised Wound of the Foot.*—On the evening of the 27th of June, 1825, I was sent for to see Jonathan Evitts, a farmer, living about four miles from this village. On my arrival I found he had, in a frolic, been cutting wheat with one of his neighbours; that he had cut his load through first, and was returning to where he had started from in a great hurry, and in exultation: that, swinging his scythe carelessly before him, the point struck against a cornstock, and before he was able to recover his balance, he trod with the whole weight of his body on the broad part of the blade, which was remarkably sharp; cut through the shoe, though a tolerably thick one, and passed obliquely through the hollow of the foot between the os calcis and cuboides, and separated that portion of the astragalus which projects beyond the calcis, and is attached to the naviculare. A shocking sight was presented; the foot was lying back on the leg, and the parts had bled profusely; the countenance was pale, and he was almost without a pulse. I ordered him a little toddy, which revived him, and then commenced examining the wound with a view towards dressing it. I found that portion of the astragalus, which was attached to the naviculare, hanging by a mere thread of the ligament, and with one clip of my scissors separated it. After washing the blood from the wound, and finding that neither of the plantar arteries, which were divided, bled, I put the parts in apposition, and secured them in their places by eight sutures and adhesive strips, and applied over the whole a firm compress and bandage. I remained the night with Mr. E. and about day was told he was determined to get out of bed. Found him perfectly delirious, with a full, bounding pulse. Bled him a full quart, and gave him twelve grains of calomel. This was about five. I soon after left him, and saw him again about three in the evening. He had been quiet for a few hours, but was now furious, with a full, hard pulse. Again bled him a quart, and gave him an ounce of castor oil, as the calomel had operated but slightly. Staid with him two or three hours, and finding the fever to continue, took from him another quart.

29th. Medicine had operated finely, but there was no abatement

investigated them thoroughly. In fact, the country towns adjacent to our city have been visited in a proportion far in advance of ours, compared with their relative population, showing a pervading atmospheric influence.

of the fever, and the tongue very much furred. Opened a vein, and again took a quart of blood, and gave him an ounce of castor oil. Saw him in the evening. No abatement of the fever. Bled him again about a pint, when he became quite sick and faint. I should have observed, that at each of the bleedings before, the blood was not stopped until he had become quite sick and faint. Ordered the castor oil to be repeated.

July 1st. Fever abated, though the pulse was rather full, and the tongue much furred. Dressed the wound, which looked well, and had healed considerably at the upper edges.

7th. Had seen my patient daily, but as he had seemed to be recovering rapidly, did not note down particulars. To-day, however, he seems to be on the verge of a low typhoid fever. Ordered bark and wine. Bowels open.

8th. No improvement; cannot take the bark. Gave him quinine, twenty grains, to four ounces of water; a table-spoonful every two hours. Wound looks well, and discharges freely.

10th. Better; takes the quinine and wine freely; bowels confined. Ordered magnesia at night. Wound improving, and discharge lessened.

24th. To-day discovered a large abscess formed about three inches above the ankle; passed an abscess lancet in, and let out a full pint of thick pus. This surprised me a good deal, as my patient had had little or no fever for some days, nor had I discovered the slightest rigors, nor had the leg appeared swelled, yet I am free to admit that of the latter I may have been deceived. In two days the discharge ceased, and the wound healed. From this time my patient continued to recover slowly, and now enjoys excellent health, and with the exception of a little stiffness in the ankle, walks tolerably well.

CASE II. False Aneurism of the Popliteal Artery.—Nathan Monship, a lad about sixteen, while playing with a large penknife, on the 13th of March, 1832, let it fall, and the blade, which was long, very sharp, and pointed, entered the innerpart of the right thigh, about three or four inches above the condyle. There was some jet of blood at the time, but a small plaster was laid over the wound, and a light bandage applied, which stopped the flow of blood, and the wound healed in a few days. On the 29th I was sent for, in consequence of the violent pain he complained of in the part. I found the leg not much swelled, but there was an evident pulsation in the part, which corresponded to each stroke of the artery at the wrist, and by osculation there was a loud, whizzing sound, as if something was forced

through a small aperture. I informed his father of the very dangerous situation in which his son was placed, and at the same time told him I thought nothing but cutting down to the wounded artery, and tying it, could save his life. Accordingly, he not only assented to every thing I proposed, but urged that it should be done as soon as practicable.

On the 3d of April, in the presence of my friends, Drs. KEENE, ROUSSET, and HARPER, I proceeded to operate—first by making an incision about four inches over and partly through the sac, and then, with my bistoury slitting the sac open, upwards and downwards, in its whole length. With my fingers I *scooped* out handful after handful of thick, coagulated blood, until I had taken from two to three pints, which astonished all present, particularly as the thigh appeared but little swelled. I now felt the warm jet of blood from under the great flexor of the thigh, and the artery lying under the tendon, and close to the bone. With much difficulty, after cutting through the fascia, I passed two ligatures under the vessel, but could not succeed in separating the ligatures a quarter of an inch. I was now compelled to enlarge my incision upwards two inches, and take up the femoral artery, which was done without the least difficulty. The leg and thigh become cold as soon as the silk was drawn tight, but when I saw the boy five or six hours afterwards it had become quite warm, and was indeed one or two degrees warmer than the left leg. The wound was closed by adhesive strips, and a light compress and bandage applied over the whole.

4th. Slight fever; bowels confined. Ordered a spoonful of salts, which operated well by night; diet, mush and milk.

7th. Still a little fever every day about evening, and tongue furred. As the bowels had not been moved for several days, gave him at night ten grains of calomel, and ordered a table-spoonful of castor oil in the morning, if it should not have operated. Diet the same.

8th. Dressed the wound; it had healed considerably, and a good deal of dark grumous blood was discharged. There was some fever, and the bowels had been freely moved.

10th. Dressed the wound; appetite good; no fever; and the parts healed except where the ligatures are. Some dark grumous blood was discharged with matter. Allowed a more generous diet.

16th. Dressed the wound daily to this day, when the lower ligature came away. The discharge has nearly ceased, and the patient continues to improve; is without fever, and has a good appetite.

21st. Wound almost healed; patient in fine spirits, and has an excellent appetite.

May 18th. The health of the patient is excellent; he walks about without difficulty, yet the upper ligature is as fast as ever, and cannot be forced away. I determined to draw it pretty firmly, and cut it short.

24th. The wound has healed over, and the patient is well.

The history of this case points out the great advantage of animal ligatures over thread or silk. Could I have obtained these, or such as I thought sufficiently firm, they would certainly have been used, though in one or two cases of amputation and one of scirrhus breast, when I could not obtain the animal ligatures in time, I have cut the silk quite short, and found not the slightest inconvenience to ensue, nor have the persons, who are yet living, suffered in any way from them. Yet as a general rule it will not do, as they might become sources of irritation, and ultimately danger might ensue.

May 30th, 1832.

ART. XI. *Stimulating Antispasmodic Liniment.* By WILLIAM M. FAHNSTOCK, M. D.

WE have had in contemplation for some time past, to make public through this journal the prescription of a liniment which we have used in a variety of painful affections, and intended to introduce it in a continuation of our paper on *external medications*, published in the seventh volume of this journal; but which we have been prevented from extending in consequence of continued indisposition during the last sixteen months, which has disabled us entirely from pursuing our profession, and favourite science. And, indeed, we now feel a necessity for anticipating a notice of it in that place, from the great popularity the mixture has gained in the immediate circle of our friends, and the community in which we move—so much so as to have obtained the title of FAHNSTOCK'S LINIMENT—a distinction of which we are by no means ambitious.—R. Spts. cornu cervi fort., Ol. olivar., Tr. opii, (Sydenham,) Ol. origanum, aa. ʒj. M. A table-spoonful, warmed in a pan or dish, *previously* heated, as it is very volatile and evaporates immediately, to be applied to the affected part, and covered with baked flannels—repeat every fifteen or thirty minutes pro re nata.

The origanum is an old and almost obsolete remedy, but it is one of the most pungent and penetrating stimulants. We were first led

to use it from *necessity*, as a substitute for horse-mint, and found the relief so prompt and decided, that we have continued to employ it with the most happy effects for upwards of ten years. A brief notice of a few cases may suffice to illustrate its efficacy.

1822. S. M. æt. 24, of vigorous constitution and sedentary habits, being a journeyman taylor, had suffered frequently from a rheumatic affection of the maxillary articulation; which extended along the jaw bone, and into the throat; so much so at times, as to prevent mastication and deglutition. He had been treated at several different periods by our much lamented preceptor, Dr. MARTIN LUTHER, upon the *common* antiphlogistic plan—venesection, cathartics, nauseants, diaphoretics, &c. &c. and externally with fumigations, sinapisms, and epispastics, successively applied to the back of the neck, the throat and face—with scarcely any mitigation of the symptoms and suffering. After all this we recommended the above liniment, which produced almost immediate relief from the most excruciating agony under which he had been labouring for the six or eight preceding days. The patient has kept a bottle of the mixture by him ever since, and whenever threatened with an attack, checks it by an immediate application.

1823. A gentleman while at a cotillion party, six miles from his home, sustained an accident by treading on the side of his foot while in the act of dancing, which gave the ankle joint a severe wrench. A stream of cold water from a fountain was directed upon it for fifteen or twenty minutes, by which time the whole foot had swollen immensely; and when he arrived at his residence, the pain was almost insupportable. The above liniment was applied, and relief followed immediately. The application was repeated two or three times, he sunk to repose and passed comparatively a comfortable night.

It is in this species of accident that the mixture displays its signal efficacy. A few years since, a medical friend was treating a case of this kind, which proved very obstinate, having resisted blood-letting, leeches, and a variety of anodyne and refrigerant applications, when we were casually invited to see the patient. We recommended our favourite mixture, and the relief astonished both the patient and the medical attendant.

We then extended the remedy to various rheumatic affections with much advantage, but found it especially beneficial in that species called myostosis, or rheumatism of the muscles; and particularly of the intercostal spaces; a disease often mistaken for chronic pleuritis, which mistake frequently subjects the patient to the unnecessary torture of blisters, emetic plasters, &c.

• Dr. PHYSICK, in the surgical remarks which he occasionally intro-

duced into his anatomical lectures, was in the habit of remarking on a peculiar state of the deltoid muscle, arising from slight injuries, which resembles and has frequently been mistaken for luxation of the shoulder joint, and for which he recommends rest alone. We have met with several cases of this kind attended by distressing symptoms, which have uniformly yielded to the liniment recommended. An affection similar to this is very common among wool and cotton spinners, who work at very large mules; which requires exertion principally of the deltoid muscle and humeral articulation. Such cases we have always found to be subdued by the application of this remedy.

Recently we have prescribed it with much success in the premonitory stages of the much dreaded cholera, and from its very prompt and distinguished antispasmodic virtues, have much reason to prefer it to every other application in that and similar affections.

We have the mixture sometimes prepared with but half the quantity of the origanum, as it may be too irritating to a very delicate surface. We have seen it vesicate in some instances where the flannel becomes soaked in the liniment while applying it. In cases where we desire a prompt and immediate impression, the mixture according to the prescription, applied frequently, will be found remarkably active and efficacious.

ART. XII. *Case in which a very large dose of Arsenic was taken by mistake, without fatal consequences.* By H. PERRINE, M. D.

THE following is a brief sketch from memory of an accident which occurred to myself in Bond County in the State of Illinois. While convalescing from dysentery, on the dawn of the 20th of September, 1821, I mixed some powdered Peruvian bark in a glass where sixty four grains of arsenic had been accidentally left by my oldest student, and drank all that it contained except what remained adhering to its internal surface, and then rode six or seven miles to visit a patient. On the route I experienced sickness and uneasiness in the stomach, which increased on my arrival; after unavailing efforts to sleep, so greatly as to induce me to promote vomiting by irritating my throat with my finger, but am not conscious of having discharged either bark or arsenic. I then had some partial slumber, which was interrupted by frightful dreams, accompanied with increasing uneasiness of the stomach, severe pain in the head, and violent agitation of the heart, and arteries, and general tremor of the muscles. Four hours had thus

passed, when my frightened student arrived, (now Dr. E. PITCHETT, of Huntsville, Alabama,) with the intelligence that from the traces in the glass I must have taken between fifty and sixty grains of arsenic. Terrible as was this news, it excited a degree of mental power that apparently regulated and strengthened the hitherto unequal action of the vascular system. I then felt, or thought I discovered preternatural heat in the stomach, and as my pulse had certainly become preternaturally strong, I had forty ounces of blood immediately taken from my arm, and within eight hours afterwards, twenty-four ounces more. My stomach was very repeatedly filled with warm milk and mucilaginous drinks, and as often immediately evacuated with the assistance of sulphate of copper. The bulky cathartic medicines, salts, senna, &c. in large quantities were then introduced, but the stomach had become so irritable as to reject them immediately. After going the rounds of more active substitutes, jalap,*rhubarb, &c. I commenced with pills of calomel, ten grains each, every two hours, which amounted to two hundred and ten grains in forty hours, whose operation was assisted by numerous glysters. Blisters, rubefacients, and the warm bath were auxiliary remedies. My pulse continued increasing in frequency during the next days, Friday and Saturday, until near midnight, when it apparently ceased. The coldness of my extremities by this time had almost reached the trunk. During several hours I was gasping for breath, and suffering all that mortal inquietude which generally denotes the near approach of death. I felt a sense of suffocation and weight on my breast, and could barely whisper my desire to be placed in a bath of very hot water. I fell asleep in the bath, was removed to my bed with heating applications to my extremities, and looking as I then thought for the last time at the light of the candle, I again sunk into profound repose. I waked on the dawn of the sabbath, at first doubtful of a change of existence, and next apprehensive of the occurrence of gangrene. I slowly passed my fingers to my wrist, and discovered perspiration, warmth, and pulsation! I raised my hand to my mouth, where it encountered a free secretion of saliva! A discharge from my bowels which immediately followed was properly tested, and gave no indications of arsenic!

The above case may probably tend to settle one of the disputes among the experimenters on poisons—as it shows that arsenic does not operate exclusively on either the nervous or the vascular system. It need scarcely be added, that my will was dictated and signed while the arsenic was in my body.

REVIEWS.

ART. XIII. *A Treatise on the Diseases of the Heart and Great Vessels, comprising a New View of the Physiology of the Heart's Action, according to which the Physical signs are explained.* By J. HOPE, M. D. &c. &c. London, 1832. 8vo. pp. xxx. 612.

THE publication of Dr. Hope's excellent treatise will, we feel convinced, constitute an era in English medical literature; for, so far as we have been able to ascertain, it would have been impossible to point out previously a single original work in our language, containing a satisfactory view of the pathology, or a complete description and rational explanation of the physical and other diagnostic signs of diseases of the heart. The few works which treated, in any detail, of the morbid conditions of that important organ, and of the symptoms by which these may be detected—though undoubtedly, in some instances, containing much valuable information, and highly creditable to their authors, could no longer be regarded as capable of meeting the present demands of the profession—as imparting the degree and kind of knowledge which the progress of science has rendered indispensably necessary to the practising physician. Nor can this be a matter of astonishment to those who recollect, that BURKS and others, to whom we are indebted for those works, wrote at a period when the pathology of many of the diseases of the heart was but imperfectly understood, and when the physician, in his endeavours to establish a correct diagnosis, being deprived of the inestimable advantages resulting from certain modes of exploration, that are of a comparatively recent introduction in practice, was necessarily compelled to rely on signs, which daily experience taught him to regard as oftener deceptive than otherwise; or at least, by which the existence of those diseases could seldom be detected until they had reached a high degree of intensity. Judging, therefore, from the character of the treatises in question, as well as from that of a few other publications of minor importance, on the same subject, we may not only safely conclude that the English physicians had contributed but little to the advancement of our knowledge in relation to the pathology and diagnosis of cardiac diseases; but that they were, in that respect, in arrears of the French, who, previous to the re-

searches and discoveries of their distinguished countryman, LAENNEC, could boast of having produced one of the very best works on that subject—the treatise of CORVISART.

But we may go further, and affirm that even at a much later period—long after the French pathologists, guided by the light afforded by morbid anatomy, and by auscultation, had succeeded in rescuing the pathology of cardiac diseases from a portion of the obscurity in which it had formerly been involved; long after they had attained considerable accuracy in detecting the existence of those diseases, and had consigned the results of their observations in publications of great merit, the state of knowledge on these subjects, in England, was very far from having advanced as rapidly as could have been anticipated. The physicians of that country possessed, it is true, a translation of Laennec's invaluable work on Mediate Auscultation; and a few among their number had, through the medium of detached publications, or of periodical works, advocated, from the commencement, the necessity of resorting, in all cases in which the existence of diseases of the lungs and heart was suspected, to the stethoscope and to percussion. Nevertheless, we believe it may safely be affirmed, that the advocates of auscultation and percussion were, up to a recent period, very limited in number in England, and that the majority of English practitioners continued greatly in arrears of their continental brethren, in regard to the pathology and diagnosis of diseases of the heart. This arose from the unwillingness which prevailed among many, to investigate the utility of the modes of exploration in question—an unwillingness which must have arisen from indolence or prejudice; to the dampness cast on the subject by the failures of some who, less backward than the rest of their fellow practitioners, had early attempted to test the utility of those means—failures which, viewing the difficulty of becoming familiar with the signs furnished by the stethoscope, might have been predicted; to the idea prevailing among some physicians, that diseases of the heart are not of as frequent occurrence as is sometimes maintained—the symptoms of these being referred by the former, to some unintelligible derangement of the nervous or sanguiferous system, and the alterations found on dissection being regarded in the light of coincident and unimportant circumstances; moreover to the spirit of suspicion and scepticism with which almost every discovery is at first received from abroad; and finally, to the belief that Laennec and his followers had refined too much, and attached more importance to his discoveries, so far as diseases of the heart are concerned, than they are entitled to.

While such was the apathy existing, for a long time, in England relatively to the new modes of exploration—and that we have not exaggerated the picture, we confidently appeal to every one who is conversant with English medical literature—an equal degree of indifference, leading to an almost total neglect of the available sources of information on the subject, prevailed in this country. To such an extent, indeed, was this apathy carried, that, though FORBES' translation of LAENNEC was republished here several years ago, and though the subject was often noticed and advocated in our periodical works, it would have been impossible, until recently, to enumerate more than a very few physicians who had succeeded, by patient researches, in overcoming the difficulties incident to the study of auscultation and percussion, and who availed themselves, in practice, of the advantages derived from those modes of exploration in diseases of the lungs and heart. But it is gratifying to be able to record that a change of sentiment on this subject is manifesting itself daily among us, and that here, as well as in England, the use of the stethoscope, which must necessarily lead to a better knowledge of the physical signs of diseases of the thoracic organs, is becoming more generally adopted.

The results of the researches of several of those who have thus become converts to the new modes of exploration, have been consigned in various periodical and other publications; but, as has been stated already, until Dr. Hope put forth the present treatise, we did not possess, in our language, an original and comprehensive treatise on the diseases of the heart, in which the utility and importance of auscultation were suitably advocated and illustrated, or in which the causes of the phenomena observed, were explained in a philosophical and satisfactory manner.

But while thus congratulating ourselves on the progress which has been recently made in England and this country, in a knowledge of the pathology and physical signs of cardiac diseases, it is far from our wish to intimate the idea, that the pathologists of the present day have, either in France or elsewhere, succeeded in entirely clearing those subjects of the difficulties which they formerly presented; or that they have universally admitted the utility of auscultation. So far from this being our intention, we believe every candid and experienced auscultator will allow, that he occasionally meets with cases which baffle all his efforts at establishing correct rules of diagnosis. On this, as well as on the other point, we can adduce the testimony of Dr. Hope himself, who admits, that authors actually have not succeeded in completely redeeming this subject from its obscurity. Hence, he says, notwithstanding the strong light diffused

has suggested a theory which we shall have occasion to notice while examining his chapters on the subject.

But independently of the points to which we have alluded, Dr. Hope has investigated others of considerable importance on which he has succeeded in throwing light—correcting the errors or supplying the omissions of his predecessors. We can only particularize, at this moment, aneurism of the aorta and the treatment of diseases of the heart. The results of his investigations on the first of these subjects will, we have no doubt, prove highly advantageous, inasmuch as the stock of our knowledge, in relation to it, was very limited,—Laennec having himself confessed, that like pericarditis and polypi of the heart, aneurism of the aorta remained without pathognomonic signs. As regards the treatment of diseases of the heart, it is well remarked by Dr. Hope, that previous to the discovery of auscultation, these maladies could seldom be detected before they were so far advanced as to be incurable—that then was not the time to judge of the efficacy of remedies—that Laennec, absorbed in his investigation of the diagnosis, paid comparatively little attention to the treatment—and that Bertin and Bouillaud are not satisfactory, giving a bold outline of leading principles, but seldom descending into detailed delineations of therapeutic measures, which are essential to the practitioner at the bedside.

“Nor are these principles always, perhaps, perfectly sound. Their habit of attributing the symptoms of a retarded circulation, under all circumstances, to one cause only,—a mechanical obstacle, gives a wrong bias to the mind; and that of entwining inflammation with the cause of almost every organic lesion of the heart and great vessels, is replete with danger to the inexperienced practitioner.”

Dr. H. very justly censures the idea, entertained by many physicians, that the expectation of effecting an improvement in the treatment of diseases of the heart is chimerical; an opinion based on the circumstance that such physicians are not accustomed to recognise the diseases in question before they have attained an advanced stage and have thus become incurable.

“To such it might, perhaps, be a sufficiently philosophical answer to reply; that an improved knowledge of the nature and causes of a disease must alone necessarily lead to an improvement in the treatment; and that therapeutic weapons are dangerous when wielded in the dark. But here we may go much further; we may say that, by the improved means of diagnosis, the maladies under consideration may be recognised, not only in their advanced, but in their incipient stages, and even when so slight as to constitute little more than a tendency. We may say on the grounds of incontestable experience, that, in their early stages, they are, in a large proportion of instances, susceptible of a perfect

cure; and that, when not, they may, in general, be so far counteracted as not materially, and sometimes not at all, to curtail the existence of the patient."

Dr. Hope next adverts to the collateral practical improvements to be expected from a better knowledge of diseases of the heart. He points out to the fact, stated by many modern writers, that hypertrophic enlargement of the heart is more closely allied to apoplexy and palsy than the apoplectic constitution itself.

"Should the hypertrophy be recognised, its effects on the brain may be counteracted by judicious treatment; should it be overlooked, the patient with a view to reducing his *apoplectic fulness of habit*, is ordered smart exercise, which by increasing the action of the heart, already too powerful, causes a preternatural determination of blood to the brain and induces the apoplectic or paralytic seizure."

There are few more common and certain exciting causes of palpitation and difficulty of breathing in diseases of the heart than derangement of the stomach. The true nature of this case being generally mistaken, and the attack being traced to a dyspeptic fit, "good air and plenty of exercise" are recommended, and the result is an apoplectic seizure.

"The circumstance that before the introduction of the new mode of exploring diseases of the heart, they could rarely be detected in their early stages, contributed to the error in question. For, as patients frequently recover from the early stages, the recovery was regarded by those who assumed this class of diseases to be incurable, as a proof that the affection was merely dyspeptic. Hence dyspepsia acquired the reputation of producing certain symptoms, particularly in the head, which are in reality foreign to it, being exclusively the results of a coëxistent disease of the heart."

On the other hand, nervous, or really dyspeptic palpitations are often mistaken for diseases of the heart; an immense proportion of asthmas, and of the most dangerous and distressing cases, result from diseases of the heart; so do likewise dropsies, especially those that are universal. In acute rheumatism, Dr. H. justly remarks, that there is no more common and formidable source of danger than inflammation of the heart and its investing membrane; that there is scarcely a disease of the heart, accompanied with obstruction of the circulation, for any considerable period, which is not productive of enlargement of the liver, and sooner or later of its ordinary consequence—abdominal dropsy; that individuals affected with disease of the heart are peculiarly liable to very rapid and destructive inflammation of the lungs, which will not bear the free depletion resorted to in ordinary affections of those organs; lastly, that in fever and inflammation in general, disease of the heart may impart to the pulse dangerous deceptive characters of hardness, fulness, weakness, or ir-

regularity, and the patient may be bled too much from the prevalence of the former characters, or too little from the prevalence of the latter. It is evident that an acquaintance with the signs of diseases of the heart, as imparted by the stethoscope, or by other means, will enable the practitioner to form, in all the cases we have mentioned, a more correct idea of the true nature of the malady, and to establish a more appropriate plan of treatment.

"Thus it is seen, that the practical improvements to be derived from a better knowledge of the diseases of the heart, extend, not to the diseases of this organ alone, but to a multitude of the most formidable maladies incident to the human frame. There is, in short, scarcely an affection with which disease of the heart may not be more or less interwoven; and 'if,' to use the language of Senac, 'we would not pronounce rashly on an infinity of cases; if we would not harass our patients by noxious and unavailing remedies; if we would not accelerate death by treating certain diseases like others which are entirely different; nor be exposed to the disgrace of seeing our diagnosis falsified by the results of dissection; finally, if we would not have danger to be imminent, while we are under the blind impression that it is remote, we must study the diseases of the heart.' "

As it would be out of our power to present, within the narrow compass of a single article, a full analysis of the contents of the excellent work before us, which embraces a wide field of inquiry, we shall dwell more particularly on those of the first part, which contains the author's views respecting the anatomy of the heart, and the physiological and pathological phenomena of the action of that organ. Nor shall we enter fully on the first of these subjects, contenting ourselves with referring such of our readers as are desirous of studying or refreshing their memory on it, to any of the numerous treatises of descriptive anatomy which we possess. Indeed, our author himself abstains from all minute description of the heart, alleging, that this subject presents no obscurity, and ought to be studied in much greater detail than is consistent with the plan of his work. He dwells, however, at some length on a few points connected with the subject—namely, on the relative size of the heart to the whole frame, and of its several compartments to each other; and on the exact situation of the organ. He remarks, that it is ignorance in respect to the first of these points that has for centuries caused thickening, attenuation, enlargement and diminution to be overlooked, and the symptoms of disease of the heart to be attributed to any cause but the legitimate one; but adds, that unfortunately it is impossible to determine the natural dimensions of that organ positively:—

"For as they vary according to age, sex, and other circumstances, there is no immutable standard of comparison which might serve as the criterion.

It is only by the eye, therefore, (and an experienced eye is necessary for the purpose,) that it can be determined whether the proportion of the heart to the system, and of its several parts to each other are natural. The proportions assigned by Laennec approach perhaps as near the truth as it is possible to arrive—they are as follows. ‘The heart, comprising the auricles, ought to have a size equal to, a little less, or a very little larger than, the fist of the subject. The walls of the left ventricle ought to have a thickness a little more than double that of the walls of the right: they ought not to collapse when an incision is made into the cavity. The right ventricle, a little larger than the left, and having larger columnæ carneæ notwithstanding the inferior thickness of its walls, ought to collapse after an incision has been made into it. Reason indicates and observation proves, that, in a sound and well-built subject, the four cavities of the heart are, within very little, equal to each other. But as the walls of the auricles are very thin, and those of the ventricles have much thickness, it results that the auricles form scarcely a third of the total volume of the organ, or the half of that of the ventricles.’ ‘In the fetus and very young children, the thickness of the left ventricle does not exceed that of the right to the extent described.’

“ ‘The right cavities are rather larger than the left, and this is not owing to sanguineous distention attendant on dissolution: for the disparity is found, though in a less degree, in animals destroyed by hæmorrhage.’ ”

In reference to the exact situation of the heart, Dr. Hope states, that as the apex and body of the heart are free, while the base, secured by the great vessels, is comparatively, though not absolutely, fixed, the organ turns in a slight degree upon its base with each alternate movement of the diaphragm, the descent of the muscle causing its longitudinal axis to assume a more vertical position, and the ascent throwing it transversely to the left. Hence the auscultator must fix upon some point at the base, which may serve as a mark and guide for his exploration of the situation of the organ.

“ ‘The point which to myself has appeared the most certain, is the pulmonary artery. This vessel, midway between its origin and the place where it divides into the two trunks distributed to the lungs, bulges at the interspace between the second and third left ribs close to the sternum, a circumstance which, as well as the situation of the other parts of the heart, I have carefully ascertained by forcing needles through the thoracic walls, at given points, into the viscera beneath.’ ”

“ ‘A line drawn from the inferior margins of the third ribs across the sternum, passes over the pulmonic valves a little to the left of the mesial line, and those of the aorta are almost directly behind them. From this point the aorta and pulmonary artery ascend; the former inclining slightly to the right, coming in contact with the sternum when it emerges from beneath the pulmonary artery, and following, or perhaps rather exceeding, the mesial line, till it forms its arch; the latter, which is, from the first, in contact with the sternum, inclining more considerably to the left until it arrives at the interspace between the second and third ribs above described. A vertical line coinciding with the left

margin of the sternum, has about one-third of the heart, consisting of the upper portion of the right ventricle, on its right; and two-thirds composed of the lower portion of the right ventricle and the whole of the left, on its left. The apex beats between the cartilages of the fifth and sixth ribs, at a point about two inches below the nipple, and one inch on its sternal side.

"The lungs descend along the margins of the sternum about two inches apart, and overlap the base of the heart, slightly on the right side, and more extensively on the left: then, receding from each other, they leave a considerable portion of the right ventricle, and a less extent of the lower part of the left, in immediate contact with the sternum.

"The right auricle is in front of the heart, at its right side and upper part. One portion of it is overlapped by the right lung, and another, principally the appendix, is in contact with the sternum. The left auricle is situated deep behind and to the left of the heart at its upper part, opposite to the interval between the cartilages of the third and fourth ribs. The extremity of the appendix is visible in front, but, when the volume of the heart is natural, it is not in contact with the sternum, being considerably overlapped by the left lung. The pericardium ascends on the great vessels as high as the commencement of the arch of the aorta, and opposite to the second rib. When the heart is enlarged its longitudinal axis becomes placed more transversely, and its lateral diameter is increased. Hence the right ventricle projects more considerably to the right, sometimes under the whole breadth of the sternum; and the left extends far beyond its usual limits to the left, sometimes elevating by compression that portion of the lung which overlaps it, so as to bring nearly its whole surface, and the tip of the auricular appendix, in contact with the sternum. In addition to being broader and placed more transversely, the organ descends lower than natural—its apex sometimes beating between the sixth and seventh ribs, and its pulsations extending to the epigastrium.

"When the right auricle is dilated or gorged, it extends upwards and to the right, and comes more extensively in contact with the sternum. When the pericardium is distended to the utmost with fluid, it forms a pear-shaped bag, the top or narrow extremity of which sometimes mounts even above the second rib: its sides are nearly in contact with the sides of the heart, while its front is separated from the anterior surface of the heart, in the dead subject, by two or three inches of interposed fluid.

"From the above description the auscultator will understand in what situations to explore the lesions of the various parts of the heart."

While on the subject, Dr H. makes some observations on percussion in its application to the exploration of the chest in disease of the heart. He gives a preference to the employment of the plessimeter over the common method of percussion on the back of the fingers firmly applied to the thorax. After remarking, that it is scarcely necessary to say, that percussion on a solid, as the heart where it is in contact with the sternum, elicits a dead sound; while that on a body containing air, as the lungs, stomach, &c. produces a hollow sound, he adds, that it is less known, and still less believed, that a

solid, beneath a sonorous body, as the liver beneath the lung that overlaps it, &c. may be recognised by a sound intermediate between hollow and dead. The principle of the phenomenon may be explained according to the laws of acoustics.

"Thus, when the vibrations of the air impinge on a non-resonant or inelastic surface, they are arrested, and the sound becomes deadened." "To apply this principle to the percussion of the chest—sonorous vibrations excited in the lung are arrested when they impinge upon a solid, inelastic body beneath, as the liver, heart, &c. hence the sound, at first hollow, presently becomes dead. To elicit these characters distinctly, a loud sound should be produced; and this may be effected by strong percussion, and by pressing the plessimeter firmly down, so as to condense the soft wall of the chest, and render it a better conductor of sound. When there is no subjacent solid body, the sonorous vibrations expand freely, and yield a proportionably hollow sound. Having just tried the experiment before several individuals placed at remote parts of a spacious room, I find that they readily distinguish the full, hollow tone of the middle lobe of the lung, the duller intonation of the lung overlapping the heart or liver, and the dead sound of the præcordial region where the heart is in contact with the chest. Accordingly, the circumference of this organ may be measured with considerable nicety by percussion on the plessimeter."

Dr. Hope next passes to the subject of the nature of the action of the heart. It must be known to many of our readers that when we apply the ear or a stethoscope to the præcordial region, we hear two successive sounds, and find that they are followed by an interval of silence or repose. The former of these sounds is synchronous with the cardiac impulse, and, in vessels near the heart, with the pulse. It is duller and slower than the latter, into which it terminates. The second sound is also louder and shorter, like the flapping of a bellows' valve. Dr. Hope remarks, that these sounds, first noticed by Laennec, were attributed by him, the one to the ventricular, the other to the auricular contraction, and that this doctrine remained unquestioned for a period of eight or ten years, until Mr. TURNER, supported by the authority of the old physiologists, HALLER, HARVEY, LANCISI, &c. pointed out that the auricular contraction, to which Laennec attributed the second sound, preceded the ventricular, and consequently, that his theory was erroneous. Notwithstanding the talent and ingenuity displayed by Mr. Turner in proving this, he was not equally successful in assigning the cause of the second sound; and though various theories were subsequently proposed, Dr. H. thinks that the nature of the heart's action remained a mystery until it was made the subject of a series of experiments instituted by himself. These experiments were performed in the summer of 1830, and the results obtained were consigned in two numbers,

(July 31st and August 21st, 1830,) of the London Medical Gazette. They were repeated in the summer of the following year, when the conclusions drawn from the former set, were fully confirmed. It is not in our power to present, in this place, a detailed account of these experiments, a subject which occupies a considerable number of pages of Dr. Hope's volume, and for which we must refer to the work itself, and shall restrict ourselves to an enumeration of the conclusions, which, as Dr. H. very properly remarks, are deducible from them.

Of the Motions of the Heart.

"1. The auricles contract so immediately before the ventricles, that the one motion is propagated into the other, almost as if by continuity of action; yet the motion is not so quick that it cannot readily be traced with the eye.

"2. The extent of the auricular contraction is very inconsiderable, probably not amounting to one-third of its volume. Hence the quantity of blood expelled by it into the ventricle, is much less than its capacity would indicate.

"3. The ventricular contraction is the cause of the impulse against the side; first, because the auricular contraction is too inconsiderable to be capable of producing it; second, because the impulse occurs after the auricular contraction, and simultaneously with the ventricular, as ascertained by the sight and touch; third, because the impulse coincides with the pulse so accurately as not to admit of being ascribed to any but the same cause.

"4. It is the apex of the heart which strikes the ribs.

"5. The ventricular contraction commences suddenly, but it is prolonged until an instant before the second sound, which instant is occupied by the ventricular diastole.

"6. The ventricles do not appear even to empty themselves completely.

"7. The systole is followed by a diastole, which is an instantaneous motion, accompanied with an influx of blood from the auricles, by which the ventricles reexpand, but the apex collapses and retires from the side.

"8. After the diastole, the ventricles remain quiescent, and in a state of apparently natural fulness, until again stimulated by the succeeding auricular contraction."

Of the Sounds.

"9. The *first sound* is caused by the systole of the ventricles.

"10. The *second sound* is occasioned by the diastole of the ventricles."

Of the Rhythm.

Order of succession—

"1. The auricular systole.

"2. The ventricular systole, the impulse, and the pulse.

"3. The ventricular diastole.

"4. The interval of ventricular repose, towards the termination of which the auricular systole takes place."

Duration.

This is the same as indicated by Laennec, viz;—

“The ventricular systole occupies half the time, or thereabout, of a whole beat.”

“The ventricular diastole occupies one-fourth or at most one-third.

“The interval of repose occupies one-fourth, or rather less.

“The auricular systole occupies a portion of the interval of repose.”

From the experiments which were performed in the summer of 1831, in presence of a number of the most intelligent and distinguished professional gentlemen in London, the accuracy of the results before obtained was confirmed. A few days previous to the experiments, a series of queries was distributed to those individuals present. They were read at each meeting, and the answers are affirmed to be the joint dictation of the party, partly during the experiment, and partly at the successive recapitulations.

From the answers in question, which Dr. H. has transcribed in full, it appears that the gentlemen who witnessed the experiments, came unanimously to the following conclusions:—

1. The ventricular systole, the first sound, the cardiac impulse and the arterial pulse coincide perfectly, except that sometimes there appeared to be a *barely* appreciable interval between the impulse or first motion of the ventricle and the pulse in the radial artery. This interval being ascribed to the distance of the artery from the heart.

2. The ventricles being opaque, it is impossible to demonstrate whether they expel their contents completely or not, but the diminution of their volume by the systole is not so great as to justify the inference that they do. During the interval of repose they are full, but not distended. The question whether the ventricles expelled the whole of their contents or not, originated in the opinion that they did so, and that, by the collision of their internal surfaces, they occasioned the second sound. As this sound is proved, however, to result from the diastole, the question becomes redundant and its determination a matter of indifference.

3. The second sound coincided with a motion cognizable by touch and sight, by which the ventricle returned from its systole to the same state, with respect to size, form, and position, as before the systole. This motion was the relaxation or diastole.

4. The auricles evidently contract before the ventricle; and the phenomenon is instantly followed by the ventricular systole. The quiescent interval distinctly falls between the ventricular diastole and the auricular systole, the repose of the ventricles continuing through the auricular systole to the ventricular contraction.

For the most part, however, there was either no perceptible motion in the auricles, or the motions were irregular and bore no relation whatever to the ventricular movements.*

* From the results of subsequent experiments on rabbits, Dr. H. was led to the opinion, that the irregularity of the heart's action is an incidental circum-

5. The auricles contract very slightly and principally at the appendix, the motion running termicrularly into the ventricular systole.

6. The auricles are constantly full, their motions ranging between fulness and distention. It is to be further remarked, that the first and second sounds were heard and the corresponding motions, (the systole and diastole of the ventricles,) were felt, even when the auricles remained in a quiescent state. Dr. H. adds, that had this observation been made in his first experiments, it would have superseded the necessity for much reasoning, as it conclusively fixes the sounds, the impulse and the *back stroke*, on the ventricles. It was further observed that when the heart was gorged, towards the conclusion of the experiments, the first sound only was heard—a phenomenon, which, as remarked by Dr. Hope, when combined with the very feeble action of the heart noticed under these circumstances, displays the cause of the diminution of sound and impulse in suffocative dyspnœa and on the supervention of death.

It may be proper to mention in this place, that the question of the motions and sounds of the heart has given rise, within a few years, to considerable discussion, and that experimenters on the subject have often arrived at conclusions diametrically opposed to those which as we have seen Dr. Hope and his friends deduced from their experiments. Besides Mr. Turner, whose name has already been mentioned in connexion with this subject, and whose essay will be found in the third volume of the Transactions of the Medico-Chirurgical Society of Edinburgh, several distinguished physiologists of England and the continent, Drs. WILLIAMS, CORRIGAN, HAYCRAFT, BOND, STOKES, and PRIGEAUX, took an active part in this discussion. The views of these gentlemen in reference to the motions and the causes of the sounds of the heart, may be stated in the following words:—

Order of Succession.

1. The contraction of the auricles, (comparatively slow,) take place first. (*Corrigan, Prigeaux, Stokes.*)
2. The contraction of the ventricles, with extreme rapidity, follows that of the auricles. (*Corrigan, Prigeaux, Stokes.*)
3. The pause.
4. The impulse does not take place during the contraction of the ventricles, but during their dilatation. (*Corrigan, Stokes, Prigeaux, Haycraft.*)
5. The impulse is caused, not by the contraction of the ventricles, but by that of the auricles, and is dependent on the force with which the auricles send their blood into the ventricles. (*Corrigan.*) It is due to the muscular action of the ventricles during the diastole. (*Haycraft, Stokes.*)

stance, dependent on the mode in which the animal is stupified, and artificial respiration maintained; consequently that it is capable of being obviated. He found, in cases in which he stupified the animal with the woorara poison, that if artificial respiration was adequately maintained, the action of the heart could be kept in the greatest perfection after the cerebral life of the animal had become completely extinct.

6. When the auricles contract, the ventricles are dilated and the heart comes forward. (*Corrigan.*)
7. When the ventricles contract the heart retires. (*Corrigan.*)

Of the Sounds of the Heart.

1. The first sound is caused by the rush of the blood from the auricles into dilating ventricles, and not by the contraction of the ventricles, as hitherto taught. (*Corrigan.*) By the expansion of the appendix. (*Barry.*)
2. The second sound is caused, not by the contraction of the auricles, the falling back of the heart or the action of the valves, but by the striking together of the internal surfaces of the ventricles. (*Corrigan.*) By the elasticity of the ventricles by which they resume their hollow state. (*G. D. M.*) By the sudden arrest given to the further ingress of blood into the auricle by the complete occlusion of the auriculo-ventricular orifice at the instant of the ventricular contraction. (*Boud.*) By the contraction of the ventricles and dilatation of the auricles. (*Stokes.*) By the check to the motion of the blood towards the aorta, by sudden cessation of the ventricular contraction. (*Huycraft.*) By the action of the valves of the auricular orifices. (*Williams.*) "The cause of both sounds at the chest is the *frottement*, or more correctly the check given to the motion of the blood in the ventricles." (*Prigeaux.*)

Rhythm.

1. The impulse and long sound come first, and are synchronous. (*Corrigan.*)
2. The pulse. (*Corrigan.*)
3. The second or short sound. (*Corrigan.**)

Duration of a single Action.

The auricular contraction occupies one-half the time of a whole beat. (*Corrigan.*)

The ventricular contraction one-fourth of the time. (*Corrigan.*)

The interval of repose the remaining fourth. (*Corrigan.*)

Thus the ventricles which require it, have eighteen hours rest out of the twenty-four; and the auricles, having less labour to perform, only twelve. (*Corrigan.*)

It is thus seen, that in regard to the order of succession of the movements of the heart, Dr. Hope agrees with Drs. Turner, Williams, Corrigan, as well as with the older physiologists, holding with them, that the auricular contraction precedes the ventricular,

* It is proper to remark that, although some of these physiologists—Drs. Corrigan, Stokes, &c. regard the impulse to be produced by the dilatation of the ventricles, and deny that it is synchronous with the pulse, they admit that this want of harmony is observed only in distant arteries, and disappears in the vessels situated near the heart. Dr. Stokes and Dr. Elliotson remark, that the difference is in direct ratio to the distance of the vessels from the centre of the circulation.

and that both these are followed by the state of repose. But it is not less clear, that on almost every other point, his experiments have led him to conclusions more or less opposed to theirs,—maintaining, as he does, that the contraction of the ventricles is prolonged, not rapid, as affirmed by Dr. Corrigan and some others; that the contraction of the auricles is smart and brief, not comparatively slow; that the impulse is given when the ventricles, not the auricles, contract; that the heart retires from the side when the ventricles dilate, and not when they contract; and that the beat is produced, not by the rush of blood from the auricles, but by the contractile nîsus of the ventricle itself upon this blood, assisted by the simultaneous distention of the auricles. As regards the causes of the sound, we shall presently have occasion to show, that Dr. Hope differs materially from the other physiologists we have mentioned.

Many of the experiments from which Drs. Corrigan, Prigeaux, Haycraft, and Stokes have drawn the conclusions to which we have just adverted, as well as many of the arguments by which the views of these gentlemen, in relation to the motions and sounds of the heart, are sustained, are undoubtedly entitled to a careful consideration. Nevertheless, we believe that few individuals competent to decide on questions of the sort, and conversant with the experiments and arguments adduced on both sides, could, if called upon to pronounce between the views adopted by Dr. Hope and those advocated by his antagonists, hesitate for a moment to give the preference to the former, particularly as their accuracy was fully confirmed by the experiments instituted by our author in the summer of 1830; consequently at a period subsequent to the publications of Drs. Corrigan, Haycraft, Stokes, &c. for the refutation of whose conclusions, (though he does not mention the names, or allude to the sentiments of either of these gentlemen in the present volume,) his first essays, which appeared in the *London Medical Gazette*, were undertaken and published.

Having, as has been shown, succeeded in establishing his conclusions relatively to the subject in question, Dr. Hope presents, in a separate section, a few observations in explanation of the muscular mechanism of the heart's action, both in a state of health and disease. He remarks, that though Haller very accurately noticed the motions of the heart, he was unable to account for the particular order of their occurrence. Our author finds no difficulty in assigning the reasons of this order. Agreeably to his views of the subject, the auricles, which are always in a state of fulness, though not distention, arrive from the progressive influx of blood during the first portion of the ventricular repose, at the state of distention, by which

they are stimulated to contract. The object for the contraction at this moment, is the propulsion of a small additional quantity of blood into the ventricles, already full, for the purpose of bringing them from the state of mere fulness to that of distention; an object which could not be accomplished without a contraction, as the blood could not otherwise force its way into the ventricles, against the resistance offered by their elastic parietes. These cavities then, being brought to the state of distention, are thereby stimulated to contract, by which the apex is tilted forwards and upwards, and occasions the impulse against the ribs. In reference to the mechanism of this motion, Dr. Hope makes the following remarks:—

“When the heart of an animal, as a frog, rabbit, dog, turtle, &c. is detached from the body before organic life is extinct, and placed upon a table, it continues to act, and each contraction elevates the apex. Hence it is unquestionable that the muscular fibres have an inherent faculty of producing this action. The manner in which the action is accomplished is very visible on inspection. During the state of relaxation, the heart lies collapsed and flattened, with a large extent of its under surface applied to the table; on contracting, it starts up, and assuming a more rounded form, is sustained by a comparatively small point of contact. The apex is, consequently, elevated, and the elevation is greater in consequence of the base, from its superior weight, being the more fixed part. The action is closely analogous in the living subject.”

It must necessarily result, from the anatomical and physiological state of the part, that during the ventricular systole, the broad fibres, contracting towards the aorta and pulmonary artery in front, draw the tense and rounded body of the ventricles upon the auricular sinuses behind. From this it follows, that the apex of the ventricle is tilted up, the rapidity of the motion depending on this, that “the apex is the long arm of the lever, the auricles being the fulcrum, and the moving power at the aorta and pulmonary artery.” The elevation of the apex is aided by the retropulsion of the auricular valves, “for, as these act on a column of fluid, which offers a resistance greater than the weight of the heart, the action is reflected on the organ itself, and impels it forward.”

Several causes are assigned by Dr. Hope for the diastole of the ventricles. 1. That power of the muscle, (whether elasticity or something more, he considers unimportant,) by which it reverts from the state of contraction to that of relaxation, and in virtue of which it exercises a degree of suction. 2. The distention of the auricles, which is greater at the moment of the diastole than at any other, as they have been filling during a longer period—that of the ventricular contraction, or half of a whole beat. 3. The weight of the ventricles collapsing from their systole on the distended auricles beneath.

them. 4. "The width of the auriculo-ventricular orifice, which allows the blood to shoot in with instantaneous velocity. It is manifest, as Dr. H. adds, that so many causes conspiring to effect the influx of the blood, an auricular contraction, at this time, and for this purpose, as imagined by Laennec, would be superfluous. The draught of blood from the auricles during the diastole, causes the slight retraction of these cavities observable at that moment.

Passing next to the examination of the causes and mechanism of the sounds of the heart, Dr. Hope remarks, that Laennec does not offer any explanation of the mode in which these sounds are generated in the natural state, and that even admitting for the sake of argument, that the views of that eminent pathologist respecting the morbid sounds—that they may be produced by the muscular fibres of the organ when they contract *spasmodically*, were correct, such a cause would be totally insufficient to account for the natural sounds, as these are not only different in their character, but beyond comparison, louder than the loudest "*muscular sounds*," that can be produced by any exertion of the most powerful muscles in the body,—a disparity the more striking, as the sounds of the heart are generally louder in direct proportion as the ventricular walls are thinner. Moreover, this cause would not account for the second sound, which takes place during the act, not of contraction, but of relaxation.

Dr. Hope is of opinion, that all the phenomena of the heart's action, both in health and disease, must lead to the belief, that the sound are occasioned by the motions of the contained fluid. The mechanism of their production, he conceives to be, according to the laws of physics, as follows:—

"When the ventricles contract, an impulse is given to the particles of fluid in contact with them; and this being propagated by collision from particle to particle, generates sound. The irregularity of the interior surface, occasioned by the columnæ carneæ, is calculated to favour this formation of sound; for, on the very first contractile movement, the stratum of fluid next to the surface, and involved in the sinuosities of the columnæ carneæ, is thrown into an infinity of conflicting currents; whence the collision of particles is more extensive and violent, than if it were occasioned merely by a simple direct impulse."

The mechanism of the second sound, or that of the ventricular diastole is, he thinks, more simple, and consequently more uniform in its character. When the diastole takes place, the blood put in motion by a number of concurrent circumstances, shoots with instantaneous velocity from the auricles into the ventricles; and the cause of the loud, brief and clear sound is referred to the reaction of the ventricular walls on the particles of the fluid when this course is abruptly

arrested by the completion of the diastole. Dr. Hope denies in positive terms, that the auricles contribute in any degree to the production of either of the sounds, having found, in some of his experiments, that these sounds were heard in equal perfection when the auricles were in a state of immobility, and that the contraction of these parts, in large animals at least, is too inconsiderable to produce any sound whatever.

By hypertrophy, the impulse is increased and the sounds are diminished. The causes of these modifications, agreeably to Dr. H.'s theory, are very intelligible. The power of the impulse is increased in direct ratio to the hypertrophy; and the movement is a progressive heaving, because the hypertrophous ventricle contracts slowly and with a gradual progression. For the same reason the first sound is diminished—the impulse communicated to the contained fluid not being sufficiently smart to occasion more than a dull, stifled sound, if any at all. As regards the second, he remarks that it is dull and weak, because the unyielding thickness of the ventricular walls renders their expansion by the fluid more difficult and gradual; consequently the reaction generating the sound, is more languid. In extreme degrees of hypertrophy, when the cavity is contracted, the sound becomes extinct, not only in consequence of the more violent operation of the same causes, but also of the less copious influx of blood. By *dilatation*, the impulse is diminished—often rendered imperceptible. When perceptible it communicates a brief shock to the thoracic walls, but has not power or duration enough to elevate them, because as a thin muscle has less power, but greater facility and rapidity of motion than a thick one, the attenuated ventricles contract on their contents with greater velocity than natural, but their action is more feeble; accordingly, the impulse is diminished and its power is sooner exhausted—whence the brevity of the shock. In dilatation the first sound becomes loud, brief, and clear, like the second, owing to the impulse communicated to the blood being smart though feeble, and to the tenuity of the walls facilitating its transmission from the interior of the ventricles. The first sound in this disease is not prolonged, as in the healthy heart, by the currents of fluid converging to the ventricular orifices, because the currents are too sluggish to occasion sound. The second sound is in like manner increased; because the quantity of blood entering the ventricles during their diastole is probably augmented, and, from the thinness of their walls, the check is more sudden. When the heart is affected with hypertrophy and dilatation combined, the modifications occasioned are compounds of those of the two morbid alterations we have just noticed.

On entering upon the subject of morbid murmurs occasioned by valvular disease, Dr. Hope recapitulates the circumstances under which they occur, for the purpose of showing that they assimilate with and substantiate the views he has taken of the heart's action. He remarks that when the aortic, or the pulmonic valves are contracted, a morbid murmur accompanies the sound of the ventricular systole; and when the valves, not closing accurately, admit of regurgitation, a murmur accompanies the sound of the ventricular diastole also; but in this case it is very slight and brief, because the swift influx of blood from the auricle during the diastole, almost instantly puts an end to any regurgitation capable of producing sound.

"When the *mitral* or the *tricuspid* valve is contracted, a murmur accompanies, and sometimes entirely supersedes, the second sound, being occasioned by the obstructed passage of the blood from the auricle into the ventricle during the diastole of the latter. When the valve, not closing accurately, admits of regurgitation, a murmur accompanies the first sound. This fact was one of the very few overlooked by that wonderfully accurate observer Laennec."

Dr. Hope is of opinion that valvular murmurs are occasioned by collision of the particles of the blood, when, by any cause, this fluid is thrown into preternatural commotion during its passage through the orifice of a cavity.

"Obstruction of a hard, rugged kind, as ossifications, occasion louder murmurs than smooth obstructions, because they more completely break the current of the blood. Murmurs are not, as it is often supposed, louder, *ceteris paribus*, in proportion as the valvular contraction is greater. On the contrary, the loudest murmurs are produced by a moderate contraction, and they become weak when it is extreme. Thus, a rugged osseous concretion, the size of an ordinary pea, in the aortic orifice, I have found to produce the loudest possible murmur; whereas, a contraction of the mitral or tricuspid valve to the size of only two, three, or four lines in diameter, I have frequently known to occasion little or no murmur. Osseous asperity alone, without contraction, produces considerable murmur. From the above premises, it may be stated as a general principle, that the loudness of a murmur is in proportion, not only to the roughness of the obstacle, but also to the quantity of fluid transmitted through the valve and put in preternatural commotion by the obstacle. The effect we should naturally expect to be aided by the force and velocity with which the fluid is impelled; and, accordingly, we find, that when the ventricle is hypertrophious, or the circulation hurried, the murmur is proportionally louder. A simple illustration of these doctrines may be obtained by employing air instead of fluid, as the sonorous medium. Thus, if air be blown with equal velocity through a large and a small orifice or tube, the sound is louder than the former. If the velocity be increased, the sound is proportionably augmented, and it is, *ceteris paribus*, always louder when the tube or orifice is rough or unequal."

A contraction of the mitral or tricuspid orifice to the size of the

natural aortic or pulmonic orifice generally produces a murmur, owing, as Dr. H. imagines, to the different configuration and position of the arterial, and the auriculo-ventricular orifices. A slight patency of the valve admitting of regurgitation, which generally produces a loud sound, may result from a structural lesion not sufficient to present an obstacle to the blood flowing in its natural direction from the auricle into the ventricle, and explains a phenomenon often observed by Dr. Hope, that a murmur from regurgitation sometimes accompanies the first sound, when none attends the second.

"A slight contraction, indeed, such as, for example, to diminish the circumference by a quarter, or from that to half an inch, does not, unless accompanied with ruggedness, occasion any appreciable murmur with the second sound; for the blood has little sufficient space to pass with tranquillity; but if, at the same time, the ventricle is dilated and hypertrophied, a considerable murmur may be created; for the increase of the quantity and velocity of the blood which enters from the auricle, produces the same effect as a greater degree of contraction of the orifice."

Dr. Hope was led to notice, in a case which presented itself to him in 1825, and an account of which will be found in the London Medical Gazette for September 5, 1829, that murmur was produced by a disproportion between the cavities and orifices consequent on enlargement of the former. This effect on the first sound, the one to which he has now reference, is of frequent occurrence in cases of great hypertrophy with dilatation. Dr. H. attributes this effect partly to the increased quantity and force of the blood expelled by the ventricular systole, but principally to the changed form of the ventricle.

"For, as in hypertrophy with dilatation the cavity is more spherical than natural, and its artery consequently rises more abruptly with respect to its internal surface, the currents of blood reflected from its sides meet in the orifice at more obtuse angles, and thus, by their collision, not only give rise to the murmur, but impede each others passage into the vessel. For the latter reason, the pulse is sometimes small and weak, when the impulse of the heart is violent—a paradox with which authors have been much perplexed."

Every physician conversant with auscultation must be aware that murmurs independent of organic disease are frequently noticed in the heart as well as in the arteries. It is also known that Laennec admitted, that the bellows murmur might accompany the *diastole* of the heart and of the arteries, and is connected with them in such a way as to replace and entirely annihilate their natural sound.

"So that, at each diastole, the ventricle, the auricle, or the artery in which the phenomenon takes place, yields a distinct sound of a puff of the bellows, the noise of which ceases during the systole."

The same distinguished pathologist remarked that the perfect simi-

litude of the intermittent *muscular sound*, and of the bellows murmur of the heart and arteries seemed to prove that the latter is referable to a real spasmodic contraction of these organs; adding that purring tremor of the arteries probably depends upon a particular modification of the nervous action, (innervation;) the three phenomena, bellows murmur, purring tremor and the thrilling pulse, being attributable to different though analogous modifications of the actions of the arteries and the heart. To the whole of this view of the mechanism and nature of these murmurs Dr. H. objects. He remarks that the bellows murmur takes place synchronously in the heart and arteries, and that consequently it cannot occur during the diastole of both; since the diastole of the one coincides with the systole of the other. He maintains that this murmur cannot coincide with the diastole of the cavities of the heart, as it is not possible that a murmur of the ventricular diastole can replace or destroy the natural sound of its systole, the two sounds being consecutive, not simultaneous.

"Nor is it possible that the auricular diastole could occasion murmur; for we have seen in the antecedent experiments, that this motion has not sufficient latitude to occasion any sound whatever."

But Laennec's theory is irreconcilable with his own explanation of the cause of the phenomena in question; for—

"If spasmodic contraction be the cause of the bellows murmur, this murmur cannot take place during the diastole of the heart, which, according to the best authorities, is an act of relaxation." "Neither will spasmodic contraction account for the bellows murmur in the arteries, for the murmur takes place during their diastole, not during their systole."

Dr. Hope affirms, that he has found the bellows murmur accompany the *systole* of the ventricles, and not the diastole, unless it, at the same time, and in a predominant degree, attended the systole.

"In the arteries, it coincides with their diastole. The purring tremor occurs at the same moment, and is a result of the same cause. The arterial thrill is nothing more than a less degree of the purring tremor."

He adds that both by experimental and pathological evidence, he has been led to believe, that the murmurs and tremors, as well in the heart as in the arteries, are occasioned by modifications in the motion of the fluid. To establish this he reminds his readers, that a bellows sound is produced by the transmission of a fluid without an intermixture of air; and adds, that in the experiments he tried, he found the sound to vary in intensity according to the velocity with which the fluid is propelled—to be increased by bending the tube at an angle, and to be still further increased, but also modified, by the admission of air. He hence attributes the sound to the friction; in other words,

to the collision of the particles of fluid against the sides of the vessels and against each other, producing vibrations of a certain rate of rapidity.

2d. He next shows, that in cases in which the sounds in question occur in the heart and arteries, this phenomenon arises from an increase of friction depending on modification of the motion of the blood—resulting from diminished quantity of that fluid or increased irritability of the heart. Being engaged with Dr. MARSHALL HALL in a series of experiments on the effects of loss of blood, Dr. Hope took the opportunity of studying the stethoscopic phenomena of the circulation under all the circumstances of collapse, reaction, &c. Eight or ten dogs were bled more or less frequently, from one to ten or twelve times, and at intervals varying from twenty-four to seventy-two hours. The result was, that exactly in the ratio of the fluid evacuated, within certain limits, was the sawing murmur noticed over the heart; the hissing bellows murmur being, at the same time, distinctly heard, when the stethoscope was placed over any considerable artery.

“The phenomena underwent the following changes in correspondence with changes in the circumstances. The animals being extremely nervous and irritable, the pulse was instantly accelerated ten or fifteen beats per minute by the slightest excitement, as that of being moved or startled; and the murmur and jerk sustained, in consequence, a remarkable increase.” “A collateral circumstance, which may probably favour the production of murmur and tremor, is the attenuation of the blood, for its particles, having lost a proportion of their lubricity, are better calculated for rapid motion, and consequently for the production of murmur and vibration by the collision against each other and against the walls of the containing vessel.”

To establish, in a still more conclusive manner, his views relative to the mechanism of the phenomena in question, Dr. H. endeavours to show, that the explanation he has offered applies equally, whatever be the circumstances under which the sounds occur, and that where the sounds *do* occur, they are attended, to a greater or less degree, with a jerking action of the heart and arteries analogous to that which has been described. With this view he points out the diseases and classes of individuals in which the bellows murmur usually prevails;—pericarditis and adhesion of the pericardium; individuals who are under the influence of reaction from excessive loss of blood, whether by the lancet or by hæmorrhage; and young people of plethoric habit and delicate, irritable temperament, subject to hysterical and hypochondriacal affections and to nervous palpitations.

“In such the murmur may come on whenever the circulation is excited, and for exciting it, the most trivial causes are sufficient.”

"It may be remarked, in conclusion, that the purely inflammatory pulse, though more or less quick, full, strong, and hard, is not jerking nor attended with bellows murmur. These distinctions, which, to the inexperienced, may appear refined in description, are perfectly familiar to practical men; and it is of great importance to the young practitioner that he make himself intimately acquainted with them, as such knowledge will not only facilitate his diagnosis, but prevent the unnecessary, and often, in nervous cases, pernicious abstraction of blood for imaginary fever or inflammation."

We have now placed before our readers a full analysis of the contents of the first part of Dr. Hope's excellent work, and must postpone to a future opportunity a notice of the remaining chapters. This omission is to be regretted, as many accurate descriptions of disease—many useful pathological views and judicious practical remarks must be, in consequence, left unnoticed. Some of our readers will, probably, feel disposed to censure us for not having dismissed, with a few remarks, the first part of the work, which, as must have been perceived, contains little more than the author's theory on the subject of the sounds and motions of the heart and the application of that theory to the explanation of the phenomena which present themselves in diseases of that organ; and dwelt with minuteness on the succeeding and more practical portions. On this point, however, we must be allowed to entertain a different sentiment. We have ever attached considerable importance to researches of the nature of those which form the subject of the present article; because independently of the fact, that it must be highly gratifying, to physiological inquiries generally, to attain correct views relative to the causes and mechanism of the healthy sounds and motions of so important an organ as the heart; such a knowledge is doubly interesting—nay, indispensably necessary to the pathologist and practical physician; who, without it, are unable to form a just conception of the causes of those sounds and motions, and of the modifications occasioned in them by diseased alterations of the heart, and cannot, therefore, succeed in establishing a correct diagnosis, without which the indications of cure are vague and arbitrary, and the method of treatment empirical. Nor is this the only reason by which we have been actuated. We felt that it would be out of our power, by pursuing a course different from that we have adopted, to do justice to Dr. Hope's masterly volume, because we could not possibly have presented within the narrow limits to which we were necessarily restricted, more than a meagre and unsatisfactory notice of the contents of the various chapters, each of which possesses strong and equal claims to our regard.

ART. XIV. *Theoretisch-praktisches Handbuch der Chirurgie, mit Einschluss der Syphilitischen und Augen-krankheiten; in alphabetischer ordnung.* Unter Mitwirkung eines Vereines von Aerzten und Wundärzten herausgegeben von Dr. JOHN NEP. RUST, Ritter des Königl. Preuss. rothen Adler-Ordens, Ritter, des eisernen Kreuzes und Kaiserl. Russ. St. Annen-Ordens Zweiter Klasse, &c. Professor der Heilkunde an der Friederich Wilhelms-Universität, und an der Medicinisch-Chirurgischen Militair-Akademie, &c. &c. &c. Band. 1, 2, 3, 4 and 5. Von A. bis Detractis, mit dem bildnisse der Verfassers. Berlin und Wien, 1830-31. pp. 738, 784, 816, 760.

A Manuel of Theoretical and Practical Surgery, embracing the consideration of Syphilitic affections and Ophthalmology, arranged in alphabetical order. By Dr. JOHN NEP. RUST, Professor of Medicine in Frederick William's University, and in the Medico-Chirurgical Military Academy, &c. &c.; assisted by an association of Physicians and Surgeons. Vols. I. to V.—A to D. Berlin and Vienna, 1830 and 1831.

IN this country, where the invaluable Dictionary of Practical Surgery of Mr. SAMUEL COOPER is so well known and so highly appreciated, it cannot be necessary to point out the immense advantages that are likely to accrue from a work of the character of that which we have announced at the head of this article. Whatever objections may be urged against the Cyclopædic form, when applied to elementary treatises on the different departments of the sciences, it must nevertheless be admitted, that it possesses an advantage over all others, by admitting the collection, into a small compass, of a greater quantity of important information, than could be conveniently embodied under any other form. Such a plan is particularly advantageous, when the several articles are made to constitute complete monographs, in which are condensed the sum of our information on the subject of which they treat, drawn up with care, and by individuals justly entitled to confidence. The present undertaking, therefore, bearing as it does the name of Rust, an individual already extensively known as one of the most distinguished of modern surgeons, aided by collaborators of established reputation, cannot but be hailed by the votaries of surgical science, as furnishing an important acquisition to their sources of instruction. Of the proposed extent of the work in question we can form no accurate opinion, as we have as yet only received five volumes; but judging from the small portion of the alphabet which is comprised within that compass, there is every reason to infer that the plan of the author is

intended to embrace a wide range, and to include every thing of interest appertaining to surgical science.

In our review of the volumes which are before us, we shall be obliged to restrict our attention to a few of the leading articles which they contain, as an examination of the entire range of subjects would require much more space than can be appropriated to their consideration.

The articles devoted to the consideration of extirpation of enlarged tonsils, of the uvula, and the tongue, furnish a good exposition of the rules that should be observed in the performance of those operations, and of the cases in which they should be resorted to. In the extirpation of the tonsils and tongue, the operation by the knife, or scissors, is recommended in preference to that by ligature, and with good reasons in its favour. Although the operation may be executed with perfect safety by the latter process, it is almost always attended with pain and much inconvenience, and it not unfrequently happens, that several days elapse before the part which has been included in the ligature drops off, during which time the individual is distressed beyond conception by enormous swelling of the tongue and fauces, profuse salivation, difficulty of respiration and deglutition, and sometimes with inability to sleep, or remain even in a recumbent posture. We once attempted to remove a large tumour from near the root of the tongue by this operation, and although its base, which was broad and solid, was transfixed by a needle and double ligature, and the latter drawn firmly round it on each side, we were eventually obliged, after our patient had been submitted to extreme suffering of three days continuance from the above symptoms, to complete the operation with the scissors. No hæmorrhage of consequence ensued; the inflammation and salivation quickly subsided; and at the end of a week the individual returned home perfectly well. We conceive, indeed, that the danger of hæmorrhage, from the employment of the knife, has been greatly exaggerated; but be that as it may, we would rather hazard its occurrence, and trust to the ligature and cautery for arresting it, than to submit the patient to the inconvenience and suffering which are apt to arise from the ligature. Should those means not be found adequate, the author recommends to secure the lingual artery where it courses along the cornua of the os hyoides. ¹

Abscessus, Apostema, (die Eiterbeule, der Abscess.)—The subject of abscess is one of great importance to the pathologist and surgeon, and is ably discussed in the article devoted to its consideration.

"An abscess," says the author, "is a manifest cavity, formed in some part of the organic tissues, containing pus or an analogous pathological fluid, which its walls continue to secrete until the cavity is obliterated." Band. I. p. 54.

Every abscess therefore, whatever its situation, he very correctly represents as a temporary secreting organ, elaborating a peculiar animal fluid, which is incapable of contributing any plastic materials to the organism, and is therefore thrown off as extraneous matter. The fluid contained within an abscess presents considerable diversity of character, according as it is developed in the skin, the glands, the lungs, brain, &c.; and, moreover, exhibits different grades, when considered in relation to its vital properties and its affinities with blood, from the condition which constitutes healthy or laudable pus, down to a mere lymphatic fluid or sanies. Notwithstanding the careful researches of HUNTER, DARWIN, SALMUTH, GRASMEYER, BRUGMANN, HOME and others, no certain criterion has yet been furnished, by which this fluid can be accurately distinguished, nor are we indeed likely to acquire one, as has been correctly remarked by WALTHER, which can be relied on as perfectly characteristic, so that in practice, the only points of importance to be observed are, its various degrees of coagulability, the presence or absence of its globules, the nature of the flocculi which are commingled with it, together with the influence it exercises on the living organism. Good healthy pus is that which possesses the strongest affinity with the properties of the blood, and, consequently, that which is best adapted, by its plastic qualities, to contribute to the restorative process; that on the contrary, which is thin and sanious, instead of facilitating the acts of restoration, generally tends to hasten the work of destruction, and is therefore regarded as unhealthy. There are a great variety of circumstances which tend to impart to the contents of an abscess these latter properties; as for example, a feeble or unhealthy form of inflammation; the long retention of the matter after it has been formed, by which its properties become modified; the condition of the organism by which it is elaborated; the influence of the scrofulous or venereal diathesis, and numerous other conditions which have a tendency to prevent the secretory process, by which the pus is separated from the blood. p. 56.

The successive changes attending the development of an abscess, and the condition presented by the cavity after it is formed, as well as the different acts by which it is obliterated, are very well described by the author.

“The pathological secretory process, by which an abscess is developed, should be considered as consisting in some modification of the plastic acts of the part excited, in most cases, by a degree of inflammation more or less intense, which, however, is sometimes not revealed by any external manifestations, and is perhaps, in some instances, entirely wanting. In the latter case,

it is probable that the system is, as represented by Walther,* affected with a genuine *purulent diathesis*, in virtue of which the pus is elaborated in the blood-vessels themselves."

While we concur fully in the leading points of this explanation, we are not disposed to yield our assert to the assumption, that an abscess may be formed without preëxisting inflammation. We are satisfied, on the contrary, that that act, in all cases, constitutes an indispensable antecedent condition, though we are ready to admit, that large deposits of matter are occasionally made in parts, in which no inflammation preceded; yet that matter must, in the first place, have derived its origin from the changes induced by inflammation in some remote part. This is exemplified in what are called abscesses by congestion, in which the pus frequently travels some distance in the interstices of the tissue, previously to arriving at its point of accumulation. We are equally averse to admit the existence of the purulent diathesis of Walther, although a similar hypothesis has been espoused by respectable pathologists. The molecular modifications which the blood undergoes in the formation of pus, take place in the situation of the inflammation itself; are the result of influences impressed upon that fluid by the inordinately excited solids with which it is then in relation, and never occur in remote situations, while the blood is moving quietly in its ordinary circuitous round, and uninfluenced by inflammatory action.

"If the anatomical characters of an abscess be examined, before the full development of the suppurative process, the middle of the tumefaction will be found distended with an inordinate quantity of blood, injected into the interstices of the cellular tissue, interspersed with which we shall observe a few points of purulent matter, the number of which are hourly increased. This fact, which has been fully established by the researches of BECLARD, PRIVOST, and DUMAS, VACCA, ALLAN, WILSON PHILIP, LAENNEC, and GENDRIN, demonstrates, on the one hand, that the development of the cavity of the abscess is owing almost exclusively to a distention and forcing asunder of the fibres and laminae of the cellular tissue, by the accumulation of the fluid, and on the other, shows the intimate relationship between the blood and the purulent matter, and the facility with which the one is transformed into the other." p. 56.

These changes are well exemplified in those abscesses which form in transparent parts. They are at first almost entirely filled by blood; the quantity of pus, however, increases progressively, and in proportion as it becomes more abundant, the blood disappears, unless, as is sometimes the case, the intensity of the inflammation continues such as to keep up great determination of blood, or becomes greatly exas-

* Abhandlungen aus dem gebiete der Prakt. Med. Landshut, 1810.

perated during the progress of the disease, so as to precipitate, as it were, a new influx upon the diseased point. Under such circumstances, we find the contents of the abscess commingled with a large proportion of blood throughout every period of the disease, or if they have already become purulent, the new attack of inflammation will again impart to them the bloody character.

“The contents of abscesses are, with only a few exceptions, surrounded by a delicate membranous cyst, which lines the parieties of the cavity. This membrane is particularly manifest in acute abscesses, is seldom wanting in those of a chronic character, and is very well developed in large lumbar abscesses, as has been well shown by the investigations of BICHAT, RICHERAND, VILLERME, BECLARD, LANGENBECK, COOPER, GENDRIN and others. The frequent occurrence of this character induced SAUVAGES to designate those abscesses, in which it exists, *cystis purulenta*. Where the cyst is wanting, its development is generally prevented by an inordinate depression of the powers of life, as in the gangrenous and pseudo-crysipelatous abscess, or by a too rapid diffusion of the purulent matter beneath the aponeuroses and tendinous expansions.” p. 57.

This membranous sac consists, at first, of a simple deposite of coagulable lymph, which, as it becomes solid, exhibits a delicate flocculent aspect. In proportion, however, as the process of organization advances, this coagulable lymph assumes more and more of the character of a pseudo-membrane, and finally becomes a complete membranous cyst, or investure, by which the matter of the abscess is circumscribed, and prevented from being diffused throughout the adjoining cellular tissue. Our author supposes that this cyst is formed in part by the plastic powers of the pus itself, and in part by the reaction of the adjacent cellular tissue and other structures, the plastic powers of which are exalted, to throw off the pus or the contents of the abscess, which acts upon them in the same manner as a foreign substance. This is doubtless true, as a general rule, but it is unquestionably equally true, that in many cases the pus possesses no such plastic properties, and it necessarily follows, that in such instances the whole of the process must be accomplished by the acts of the adjacent capillaries, and the tissues which they permeate. But be this as it may, it is stated by our author, that the membranous envelope in question generally retains a character of great delicacy, while it is completely excluded from the contact of atmospheric air, but when exposed for a length of time to that influence, it becomes red, more vascular, is increased in thickness, and often assumes the consistence of fibro-cartilage. This is seen in the membranous cysts which are found lining tuberculous excavations in the lungs, especially when they are contrasted with those which line a common abscess, yet we

have seen some cases of chronic abscess of very long standing which have exhibited a membranous lining possessing all the properties adverted to, although the atmosphere has had no access to them. But whatever may be the extent of the modifying influence of such causes, certain it is, that this membrane possesses, not only an important agency in the development of the abscess, but also in its removal; for performing, as it does, the double office of secretion and absorption, and being at the same time possessed of a considerable degree of contractility, whenever the activity of its recurrent function is diminished, while its faculty of absorption remains unchanged, or is augmented, the resistance being in part overcome by the diminution of its distention, it contracts upon its contents; the capacity of the abscess is gradually diminished, and is eventually entirely obliterated by a cohesion between its parietes.

We shall pass over the observations of the author relative to the diagnosis of abscesses, to notice the different varieties into which he divides them. These divisions are founded principally upon the causes by which they are induced, their tendency to heal, the different states of the organism under which they are developed, and their situation.

Under the first head we have those which are called idiopathic, or which arise from the simple acts of the organism under the influence of common causes; as, for example, common inflammation, the irritating influence of chemical and mechanical irritants, &c. and those which are designated sympathetic, and which are dependent upon constitutional causes. These are subdivided by the author into constitutional, rheumatic, syphilitic, and abscesses by congestion. (*A. constitutionalis*, *A. rheumaticus*, *A. syphiliticus*, *A. par congestionem*.)

In relation to their sanitive tendencies, they are divided into benign or suppurative, when they contain healthy pus and are disposed to heal, and into the ulcerative and gangrenous, when their contents are unhealthy or sanious, and when they are disposed to spread by the process of ulceration and sloughing.

When they are accompanied with an exalted condition of the vital activity of the organism, they are called acute or phlegmonous; but when they occur under an opposite condition of the system, they are designated cold or chronic abscesses.

They are, moreover, divided, according to their seat, into superficial, profound, and occult, and into external and internal, according as they occupy the superficies of the body, or some of its internal parts, as the liver, spleen, prostate, head, neck, &c. p. 63.

In the treatment of abscesses regard must be had, according to the author, to the condition of the system, and the character of the local affection. The curative procedures must, therefore, be divided, according as they are applicable to the abscess itself, or to the disturbance which it occasions in the general system. The constitutional treatment must of course be conducted upon general principles, but the local must be modified according to the activity of the vital forces of the structures concerned in the development of the abscess, the seat and course of the disease, and its extent and duration. From these considerations may be deduced the following indications.

- "1. To regulate the processes of inflammation and suppuration, which constitute the source of the abscess.
 - "2. The evacuation of the pus.
 - "3. The management of the secreting surface of the abscess.
 - "4. To subdue the various complications which may happen to exist."
- p. 67.

In relation to the first indication, it will be proper, in some cases, to endeavour to disperse the tumour, and thereby to prevent the development of suppuration; while in others, the process of suppuration should be promoted by appropriate measures. The first of these objects cannot always be accomplished, yet there are particular circumstances which render it an object of great importance, as for example, when the inflammation is seated in the eye, the prostate gland, in the vicinity of the anus, &c. where the development of suppuration would either destroy the organ, or give rise to fistulous ulcers difficult to heal, or other mischievous consequences. In many abscesses by congestion, moreover, our author thinks that a cure is as well, or even better accomplished, by promoting the absorption of the pus, than by making an opening for its evacuation; an inference which, although correct to a certain extent, is certainly not borne out when applied to many abscesses of that character.

On the other hand, the process of suppuration should be promoted where the abscess is healthy; where it is placed in a situation which does not endanger any important organ, or in which it is not likely to give rise to any formidable consequences; where it evinces a disposition to become speedily matured, or where the suppurative process will have the effect of dislodging some extraneous body.

There are several means, both general and local, which possess the property, not only of keeping back the process of suppuration, but also of overcoming it, under some circumstances, even after it has become established.

Amongst these, one of great importance is local blood-letting, by

which the inflammation may be generally subdued before the suppuration is fully established. As contributing to the same end, the author recommends the employment of drastics, and such means as are calculated to promote absorption, and excite a revulsive impression; as frequently repeated, and full doses of calomel, a succession of emetics, abstinence, nauseating doses of antimony, warm bath, &c. As local applications, cold will, in many cases, be found highly useful; but in some instances the employment of warmth, in form of cataplasms or fomentations, will be found more beneficial. Various stimulating applications are also employed in form of friction, plaster, lotions, &c. and sometimes when there is not much inflammation, with a salutary result.

“Of these, the best are a solution of muriate of ammonia in vinegar, applied warm; the emplastrum resolvers Schmuckeri, the emplastrum mercuriale, a mixture of 4-8th emplastrum diachylon compositum; 3-8th emplastrum mercuriale, and 1-8th emplastrum cantharidum ordinarium; a mixture of tart. emetic, of emplastrum diachylon, emplastrum melliloti, and emplastrum oxycroceum; the emplastrum cantharid. or the application of a piece of caustic, so as to produce an eschar; onions, salt, mustard, horse-radish, and other stimulating applications. A red hot iron held near the part, so that its electric rays may fall full upon the tumour, is a most powerful discutient measure.”

The author has omitted to mention the various preparations of iodine, which have been found, in modern times, the most efficient means of accomplishing the objects under consideration. We have also seen a cup drawn over the surface of the tumour, produce a happy effect, and in some instances accomplish the resolution of the disease in a short time. The continuous application of a bladder, filled with pounded ice, will sometimes accomplish our object much more effectually than all the stimulating plasters detailed above.

When the object is to encourage the maturation of the abscess, care must be taken not to reduce the inflammation below the proper point; but when it is too feeble, such measures should be resorted to, as will be calculated to give to it the requisite degree of activity. The best applications, under ordinary circumstances, are such as are calculated to retain heat and consistence; as emollient cataplasms, composed of linseed meal, bran, oatmeal, bread, &c. made into a poultice with water or milk. Where the pain is very distressing, we may add to any of these poultices, a sufficient quantity of laudanum, poppy heads, cicuta, hyosciamus, &c. Should the condition of the parts be such as to require an exaltation of their activity, the cataplasms should be rendered more stimulating by the addition of mustard, onions, black scap, &c. Various exciting plasters have

recommended for the purposes under consideration, as the plast. diach. E. resinosum, E. ammoniaci, galban. and many others of a similar character.

When the abscess is sufficiently matured, the matter should be evacuated, but the practice to be pursued under such circumstance, is detailed under the article, "*Oncotomia*."

When the abscess is of a healthy character, and a free exit has been given to the matter, the case will require but little interference on the part of the surgeon. Most that will be requisite, will be to keep the part in an easy posture, to apply light dressings, and if the orifice should evince a disposition to close too early, to open it with the point of a probe, or where that is impracticable, with a lancet or bistoury. It will seldom be proper to introduce tents, or other irritating means, which are sometimes used under the pretext of giving free exit to the matter, as their presence always proves a source of irritation, and sometimes excites so much inflammation in the parietes of the sac, as to greatly exasperate the disease, and increase the suppuration. In some cases, however, the excess or defect of the inflammation will render it requisite to resort to such means, after the matter has been evacuated, as are calculated to subdue or exalt inflammatory action. When the activity of the part is too great, antiphlogistics will be the appropriate remedies, as the local abstraction of blood, the employment of warm emollient cataplasms, to which a small quantity of opium, cicuta, or hyosciamus, will form a useful adjunct; the application of light pledgets of lint spread with simple cerate, &c.

It happens much more frequently, that the vital powers of the part are too feeble, and require to be stimulated. In such cases, the secretion is generally defective, or is thin and serous, or sanious. In some instances, it will be proper, under such circumstances, to make a free opening in the abscess, and to fill its cavity with dry lint, or with a dossil of lint spread with some digestive ointment, or embued with some stimulating material. Amongst the various substances which may be employed with this intention, the following are recommended by the author; the common digestive ointment, basilicon ointment, the balsam of Frahmius, a solution of caustic potash, of the nitrate of silver, or corrosive sublimate; in camphorated spirits. Fluid preparations of a similar kind may also be injected into the cavity of the abscess. With the same view, a seton or ligature may be drawn through the abscess. The constitutional treatment must be varied to suit the nature of the case, and should be strictly antiphlogistic where the acuteness of the symptoms requires it, but invigorating and nu-

tritious where the powers of life are enfeebled. Under the latter circumstances, a generous diet and a pure atmosphere should always be called into requisition, and as calculated to second their effects, the patient may be put upon the use of tonic medicines, good wine, &c.

This is a brief summary of the doctrines and practice inculcated by Dr. SOMMER, a distinguished army surgeon, in relation to the characters and treatment of abscesses. It will be seen that his observations are generally judicious, and his practice such as should be pursued in the management of a majority of the affections under consideration. With regard to treatment, however, he has omitted the consideration of many modifications and details which are often important. To supply this defect, some very valuable reflexions are appended to the article by Professor Rust himself, the learned editor, who has entered more fully into the discussion of some points connected with the treatment than has been done by Dr. Sommer. As however, most of his practical precepts are referable to the several indications laid down above, and will readily suggest themselves to the judgment of the surgeon, we shall not stop to discuss them in the present place. The whole article furnishes a very good exposition of the pathological characters and treatment of the disease, and is highly creditable to its author. We may make the same remark in relation to the several articles which treat of the abscesses that are developed in different parts of the body; as for example, in the abdomen, the glandular system, the neighbourhood of the anus, the antrum, the ear, the head, &c. all of which contain much useful information. That on abscess of the ear by Professor BECK of Frieberg, is highly commendable. He is the author of an excellent work on the diseases of the ear, which we have already noticed in a preceding number of this journal. We shall be more particular with regard to an article entitled *Abscessus Capitis Sanguineus Neonatorum*. This is a form of disease which, although it has been particularly noticed by some pathologists, has been very much overlooked by a large majority of them. Under this appellation, or that of *cephalæmatoma*, the author, Professor DIEFFENBACH, wishes to describe a sanguineous tumour, which is sometimes developed between the pericranium and the bones of the head of new-born children, and which frequently continues for several days, or weeks after birth. These tumours are, at first, soft and doughy to the feel, but afterwards become tense and elastic, and sometimes seem to be surrounded by a sharp prominent margin, which feels like a ledge of bone. There is at the commencement no discoloration of the skin, but in proportion as it becomes more distended, it acquires a glossy and varnished appearance. The

temperature of the tumour is seldom elevated above that of the head, and when the palm of the hand is pressed upon its surface, a kind of thrilling, or pulsatory sensation can sometimes be perceived. The volume and configuration of the tumour are exceedingly variable; sometimes they are not larger than an ordinary bean, but in some cases they attain the volume of the fist. They are generally convex upon the surface, but are occasionally flat, and diffused over a considerable extent of the superficies of the head. They are in most cases solitary, but in some rare instances several small tumours of the same kind have been met with upon the head of one individual. They may be developed upon any portion of the parieties of the cranium, but their most frequent locality is upon the surface of the parietal bone.

“During the early period of the existence of the disease, the child seems to suffer little or no inconvenience, but as soon as any material changes begin to take place in the tumour, it becomes pale and sickly. GOLIS reports a case in which a tumour of this kind occasioned considerable stupor. It may, indeed, happen where the tumour is large, and the tension of the cranial aponeurosis very great, that the membranes of the brain, and even the brain itself, may experience more or less compression.” p. 120.

With regard to the cause of the disease, and the period at which it takes place, there has been much difference of opinion. It has been by several individuals attributed to difficult labours, to the long lodgment of the head within the straits of the pelvis, and the application of the forceps for its delivery; yet we are informed by accoucheurs of extensive observation, that they have never seen it occur in a case in which the labour had been difficult. PALETTA states that he scarcely ever met with it, except after easy labours, and NÆGELE's extensive experience never furnished him with an instance in which it succeeded the most difficult forceps cases. OSIANDER very rationally conjectures that they are congenital, or are developed before birth; and the same sentiment is adopted by SIEBOLD, MICHAELIS, SCHMIDT, HOERE and others.

But notwithstanding tumours of this kind occasion so little disturbance, during the first periods of their existence, their issue, when they are left to themselves, is almost invariably fatal. The extravasated blood is submitted to the process of decomposition, and becomes converted into a dark-coloured, or brown sanious diffuent putrid gore; the pericranium, which is spread out upon the fluid, is thickened; the corresponding portion of the cranial bone becomes diseased—is sometimes involved in a profound caries, or is completely perforated by absorption; the influence of the disease is communi-

cated to the brain and its membranes, and death sooner or later takes place. NÆGELE, KOPP, and OSIANDER, all detail cases in which, from the long continuance of tumours of this kind, a perforation of the cranium, of more than an inch in diameter, was formed. Paletta also mentions a case, in which the outer table of the bone was destroyed, while the inner was perforated by a great number of minute apertures. From the contour of the diseased bone, however, a considerable ossific deposit had taken place, which seemed to manifest a disposition to extend from the circumference towards the centre of the tumour. CHELIUS has, moreover, described two cases, in which the pericranium, which occupied the surface of the tumour, was remarkably thickened, and transformed into bone, which when firmly pressed, furnished a crepitating sensation, similar to that occasioned by bending an elastic plate of metal. These were regarded by several surgeons as examples of cranial exostosis, but were both cured by laying open the tumours, and evacuating the coagulated blood.

In the treatment of these sanguineous abscesses two leading indications present themselves to the consideration of the surgeon. 1st. To disperse the tumour, where that is possible, by promoting the absorption of its contents. 2d. To give exit to the extravasated blood, and to heal up the cavity of the abscess.

With regard to the means of accomplishing the first, it is needless we should enter into any minute details. Suffice it to say, that slightly stimulating lotions, fomentations, and poultices, will be the best, which must be varied to suit the circumstances of the case. A compress and bandage have also been recommended for the same purpose, but when the tumour is large, we doubt much their efficacy.

Whenever these means have been employed for several days without success, it will be proper to evacuate the blood, and to endeavour to heal up the abscess from the bottom. Some have recommended this to be done by caustic, others by seton, some by a very minute puncture, while several have recommended a free incision, or even the excision of a portion of the walls of the tumour. The first plan has been proposed by Schmidt and Golis; the second by Paletta; the third by Chelius; while Professor Dieffenbach recommends the fourth. As soon as the blood is evacuated, the cavity should be filled with dry lint, or with a small pledget, spread with cerate, with a view of promoting suppuration and granulation. From what we have ourselves seen, we should give the preference to a free opening, as it can occasion no bad consequences, and generally ensures a more speedy cure.

Abscesses of this kind, though most frequently observed in chil-

dren at birth, are not confined to that early period. While on a visit to Charleston a few months since, we had an opportunity, in company with our particular friend, Professor HOLBROOK, of that city, of witnessing one as large as a common apple, which was situated upon the parietal bone of a youth of five or six years old. It took place spontaneously, at least without any previous injury, and from its general character, we supposed it to be a common purulent abscess, but on plunging a lancet into it, nothing but red fluid blood escaped. The cavity was filled with a tent, and although the blood afterwards evinced a disposition to accumulate again, suppuration and granulation were established, and the part was finally healed. These abscesses are also sometimes developed in other parts of the body. Paletta reports a case in which one of them occupied the tibia, and Dr. BUSHE, of New York, treated one, which was situated upon the tarsus. It was connected with caries of the bone, which rendered amputation necessary.*

There are many other articles devoted to the consideration of various species of abscess which we shall be obliged to pass over in silence. Some of them are drawn up with ability, and contain much valuable information.

Amputatio Artuum. (*Gliederabsetzung, Gliederablösung.*—The accidents and diseases which call for the operation of amputation are so numerous, the proper determination of the cases in which it should be performed often so difficult, and the methods of operating so diversified, that it may be useful to follow our authors in their observations upon each of these points, the more especially, as they have treated the subject in extenso, and have evinced considerable ability in the discussion of the various topics which it involves. The first question we shall examine is—

1. *What are the causes that demand the operation of amputation?—*

This is a point upon which there has existed great diversity of opinion. While BOUCHER, GERVAISE, FAURE, and especially BILGUER, have restricted the cases in which it should be resorted to, to a very small number, many modern surgeons, some of them we fear actuated by no commendable motives, have recommended and practised amputation in cases in which the member might have been saved by appropriate medical and surgical treatment. Bilguer has been much criticized for interdicting the operation altogether, but we question much if the ills resulting to human nature would be as great by the adoption of that course, although it would unquestionably lead to the

sacrifice of many valuable lives, than we find daily accruing under the influence of the mania for the performance of operations, by which, many modern surgeons are actuated. It is the duty of every surgeon to avoid both these extremes, and only to resort to amputation in those cases in which it is indispensably necessary to the safety of the patient. It is unfortunate, however, that such cases cannot always be with certainty determined, and for the want of definite rules of discrimination, it must sometimes happen, that limb will be sacrificed which might be saved without an operation, and on the other hand, that some lives will be lost, which might be preserved by timely amputation. The following are the objects laid down by the author as calling for the operation:—

“We resort to the operation of amputation for the removal of such local diseases of the extremities, as are, in the present condition of the science, incurable, or are rendered so by either the external or internal relations of the individual, and which consequently endanger his life, or disqualify him permanently for the offices and enjoyments of existence.” p. 538.

The following may, therefore, be regarded as the principal circumstances requiring the operation:—

“1. Where a member is extensively lacerated, or in part carried away by external violence, as for example, by a cannon-ball, by machinery, &c., in which cases as the extent of the laceration, the irregularity of the surface, the projection of the bones, the tendency to gangrene, and other circumstances, will render it impossible to effect a cure, it will be necessary to convert it into the nature of a simple wound, by resorting to the operation of amputation.

“2. Where, by external violence, the bone of the member is so extensively splintered, and the soft parts are, at the same time, so much contused and lacerated, as to render their restoration impracticable, death from gangrene and sloughing can only be prevented by the removal of the injured member.

“3. Where the bone is uninjured, but where the soft parts, and especially the important vessels and nerves are torn, or extensively contused, amputation affords the only means of preventing the development of gangrene, and the consequent death of the individual.

“4. Where a cannon-ball, or large shot, strikes one of the members obliquely, so as to violently contuse or lacerate the deep-seated soft parts, to tear the vessels and nerves, shatter the bones, &c., without materially injuring the superficies of the limb, the life of the patient can only be saved by a timely resort to amputation.

“5. Amputation will also be necessary in those cases, in which a considerable articulation, especially the knee or the elbow, sustains a violent injury, by contusion, a laceration of its ligaments, from a violent dislocation, fracture or crushing of the articulating extremities of the bone, the tearing up of the soft parts of the joint, with an escape of the synovial fluid, the extravasation of a considerable quantity of blood within the capsule, together with other formidable injuries of its structures. If the operation be not performed under such

circumstances, the patient will be destroyed by violent inflammation, and suppuration, caries, gangrene or tetanus.

"6. In those cases in which either from a wound, from the influence of disease, or the ravages of extensive suppuration—from gangrene, an aneurismatic condition of the large arteries or veins, an alarming hæmorrhage ensues, which on account of the inaccessible situation of the artery, or its peculiar condition, cannot be arrested by the usual means, amputation will present the only chance of saving the life of the patient.

"7. When a profound metamorphosis, or extensive degeneration of the structures of one of the extremities takes place, as for example, an extensive pseudo-erysipelas, large encysted and fungous tumours, elephantiasis, aneurisms, with an extensive destruction of the adjacent parts, and these endanger the life of the patient, either by their influence on the constitution, or their local ravages, amputation furnishes the only means of preserving the individual against destruction.

"8. The same is true, where similar transformations, or degenerations, seize upon the bones, in such a manner, that the disease cannot be removed by the extirpation of the affected bone itself, or where they give rise to a transformation of its substance into a sarcomatous, encephaloid mass, or involve it in a profound destructive process, as in caries, &c.

"9. Also in incurable diseases of the joints. (Tumor albus, arthrocece, arthropoyosis neglecta, &c."

These may serve very well as general rules, but it may occur to every individual, who is engaged in extensive surgical practice, to witness the preservation of both life and limb under several of the conditions which have been enumerated. Yet such success should rather be considered as constituting exceptions to a general rule, than as militating against the justness of the rules themselves; for, as the author very properly observes, we may sometimes obtain a single successful issue without the operation, at the expense of ninety-nine victims, sacrificed to an omission, or rejection of it. It must be confessed, however, that it is impossible to prescribe rules which shall be applicable to all cases. Every one possesses some peculiarities, and all that can be done is to lay down general axioms, and leave their application to the judgment and discretion of the practitioner.

There are, besides these, some other conditions under which amputation may become necessary, and which have been considered by some surgeons as always calling for its employment. The following circumstances are detailed by our author, as sometimes demanding the operation.

"10. Where, from the situation of the patient, or the nature of his disease or injury, the means necessary for the preservation of the member cannot be commanded; as for example, on the field of battle, or during a retreat, when an individual has received a complicated fracture, a severe penetrating wound

of an important articulation, and proper remedies or dressings cannot be obtained, or where the means of transporting him to a convenient situation for conducting the treatment, are not at hand. In such cases, amputation will sometimes become necessary to save the life of the patient, although he might, under favourable circumstances, be cured without it.

"11. When an injury or disease is of a nature not to endanger the life of the patient, but to admit of cure, but only by leaving the member in such a state as to render it altogether useless; as for instance, by the development of an artificial joint; and

"12. In those cases, in which a member is so circumstanced or distorted, as to render it a source of great inconvenience to the individual, as an ankylosis of one of the extremities, which is, at the same time, so flexed or extended, that it interferes materially with the offices of life; an artificial joint implicating the lower extremities; or distortion of the fingers, &c." p. 540.

We doubt much the propriety of amputating merely for the removal of an artificial joint, more especially as the resources of surgery furnish means, which are amply adequate, at least in a majority of cases, to overcome the disease, and restore the utility of the member. The seton, the cautery, the excision of the extremities of the bones, &c. should always be tried first, and we are of opinion, that the number of cases in which some one of those remedies will not succeed, will be found exceedingly rare. We should also weigh well all the circumstances before we resort to amputation merely for the removal of an ankylosis, or a member attended with distortion. It should always be borne in mind, that the operation may occasion the death of the individual, and the inconveniences incurred by such a condition, though frequently very great, are seldom so considerable, that a removal of them should be purchased at so much hazard. We have known an individual lose his life by a surgeon, yielding to his solicitations, and performing the operation under such circumstances, even though the state of his constitution was such as to furnish every prospect of a successful issue.

Gangrene has, at all times, been considered as a condition calling for amputation, especially under some circumstances which frequently attend it. Our author, however, observes, that gangrene itself can never demand the operation, which is only required by the consequences to which it gives rise. It will never be proper to amputate while it is yet in its forming stage, inasmuch as experience hath shown, that many cases can be cured by appropriate treatment, without sacrificing the member. When the death of the part is fully established, and the process of destruction is still progressive, our author affirms, that the operation has no power to arrest it, but may, on the contrary, hasten its extension, by the injury it inflicts on the

organism; and should the mortification be fully arrested by the establishment of a line of separation between the dead and the living parts, the operation cannot be necessary; because the powers of nature are sufficient to throw off the mortified portion of the member. As, however, it will frequently happen, that after the dead parts have separated, the remaining stump will be so uneven, or the bone will project so much, as to render it impossible to cicatrize its surface, amputation will become necessary, to form such an one as will admit of being healed. Under such circumstances, therefore, the operation should be resorted to, as soon as a distinct line of demarcation shall have been formed, provided the condition of the patient, in other respects, does not contraindicate its employment, because by waiting for the complete detachment of the soft parts, and especially the bone, he will be submitted to an unnecessary degree of irritation and suffering. In those cases, moreover, in which the gangrene is so extensive as to render it impracticable to save the member, and a profuse hæmorrhage takes place from the main artery, it will be better to amputate at once, than to cut down above the seat of the injury, with a view of securing the vessel, as the former operation will be eventually necessary, and it will, of course, be improper to submit the patient to the double suffering and danger of also performing the latter.

We fully concur with the author in objecting to the operation for the removal of tetanus. The injury is no doubt the cause of that disease, but it only proves instrumental in its development by irradiating its influence throughout the nervous system, and by giving rise to a pathological state of some portion of the nervous centres, which cannot be removed by the amputation, although by resorting to that operation, we can readily remove the injury by which it was excited. We are aware that this disease has been laid down by many respectable surgeons as furnishing an indication for the operation, and we have seen it practised, under such circumstances, a considerable number of times, but in every instance it has failed to arrest the disease.

11. *At what period should the amputation be performed?*—This is a question on which the sentiments of practitioners have been much divided, nor is it an easy matter to furnish an answer, which can be adopted as a general rule of practice, so numerous and diversified are the conditions and complications attending the cases which require the operation. The principal difficulty exists, however, in relation to recent injuries in which amputation becomes necessary, the decision being much easier in chronic cases, when the ability of the

patient to endure it, and the condition of the wound, are the principal circumstances demanding attention. The following is laid down by the author as a leading principle to be observed in determining this question.

“The operation should be resorted to at a time when the general system is not affected with any general disturbance, which, by becoming complicated with the consequences of the operation, might tend to excite a dangerous degree of reaction. As, therefore, a general disturbance of this kind, a violent sympathetic inflammatory fever, for example, is a necessary consequence of all extensive injuries, it will be proper to amputate either before the fever is developed, or to delay the operation until the inflammation is subdued.” p. 542.

At the time of the reception of the injury, the vital powers generally sustain such a shock, that to amputate before they are rallied from the state of oppression with which they are overwhelmed, would be to destroy the patient. In most cases, however, where the surgeon is asked to amputate under such circumstances, there will be a period between this state of oppression and the inflammation, which sooner or later supervenes upon it, at which the vital forces have sufficiently reacted, to admit of the operation being performed with safety. If, however, this juncture be allowed to pass by, and violent inflammation with great disturbance of the general system has taken place, it will be unsafe to operate until the organism has been reduced by appropriate treatment, to obviate the hazard which would otherwise arise from the additional shock inflicted upon the organs by the operation. A contrary course is too often adopted, especially on the field of battle, and the melancholy consequence is, that a large proportion of those who are subjected to amputation, fall victims to this improper practice. We do not think of performing an operation on the eye, when that organ is affected with inflammation, nor, indeed, to submit an individual to any other important operation, without having first prepared the system by appropriate treatment: yet many surgeons, losing sight of this important rule of practice, do not hesitate to jeopardize the lives of their patients by resorting to amputation, while the whole system is in a complete tumult, occasioned by the influence of the injury. No correct rule can, therefore, be predicated upon mere lapse of time, but every thing should be determined by the condition of the patient.

III. *At what point may the amputation be most conveniently and advantageously performed?*—This question is much more easily settled than the preceding. There are two points at which the operation of amputation may be practised; through the articulations, and through the continuity of the bones themselves. The first was recommended

by GALEN and most of the ancients, but afterwards fell into disrepute, until it was revived in modern times by BRASDOR, and subsequently by LARREY. The advantages or disadvantages attending that method of operating will depend upon the magnitude and kind of articulation upon which the operation is performed. For the removal of the fingers and toes, and the carpus and tarsus, it should always be preferred, because those articulations are small, and do not present such an extent of surface as to involve any serious risk from inflammation, and the operation can be there performed with less violence to the structures than by sawing through the bones. Amputation may also be practised with safety at the shoulder and hip-joints, yet when the injury is not situated so high up as to compel us to adopt those operations, it will be better to operate through the continuity of the femur or humerus. BRASDOR, VERDUIN, DUPUYTREN, and some others, have repeatedly amputated with success through the elbow-joint, but as that operation involves more hazard than the common method of amputating through the humerus, and secures no more advantages to the patient, we think it ought not to be performed. With regard to the operation at the knee-joint, we think it should never be resorted to; for although the successful issue of a few cases have proved that it may sometimes be practised with safety, the fatal termination of many others clearly prove that it is unsafe. The extent of surface presented by that articulation, the numerous structures that enter into its formation, and, above all, their remarkable proneness to become affected with violent inflammation, are circumstances which alone should forbid the operation, to say nothing of the reticulated extremities of the bones, the difficulty of securing a sufficient flap to cover the stump, and the tardiness with which the soft parts form an adhesion with the surface of the cartilage. A flap cannot be formed at the ankle-joint, and as the wrist is so completely surrounded by tendons and synovial sheaths, as to expose the patient to great danger from inflammation, the operation should never be practised in those situations. In all other cases, therefore, than those specified above, it will be best to amputate through the continuity of the bones.

The next question discussed by the author is, what is the best method of operating? We shall not dwell upon this point, but shall merely observe, that each of the methods; that is, amputation by the circular incision, and by a single or double flap, has its advantages in particular cases. That which, in any case, can be performed with the greatest ease to the patient, and is calculated to form the best stump, should always be selected.

We shall not follow the author through his description of the method of performing the individual amputations, as this would be an act of supererogation. Suffice it to say, that he enters into a fair and candid examination of the various methods proposed by authors, and after pointing out their advantages and defects, describes that which he prefers. The following is his method of amputating at the shoulder joint, which, it will be seen, does not differ materially from one of the plans proposed by LARREY.

"I make a longitudinal incision, from the point of the acromion to the insertion of the deltoid, so as to expose the head of the bone, with a view of ascertaining whether it is healthy, and can be left. If it should not be diseased, I decapitate it, and suffer the head to remain. If diseased, so as to require removal, I extend two oblique incisions from that already made, and from the vicinity of the head of the bone, one of which is carried upwards and backwards, towards the shoulder, the other downwards, towards the axilla, so as to form two triangular flaps. These are then dissected back, and turned out of the way. A double-edged amputating knife is then carried between the acromion and the head of the humerus, and conducted in such a manner as to divide both the capsular ligament and the tendon of the biceps muscle, the arm being at the same time elevated, so as to allow the blade of the knife to glide through the joint, and to complete the operation by cutting a third triangular flap, which is situated posteriorly and inferiorly, and which may be approximated with the others by means of strips and bandages." p. 603.

The only advantage presented by this operation is, that the first incision will expose the head of the bone, which, when it is healthy, may thus be saved, if any utility can be presumed to arise from the adoption of that course. But when it is the object to remove the whole arm, regardless of the condition of the bone, the operation of LISFRANC will be much better, as it can be more expeditiously performed, requires less dissection, will inflict less suffering upon the patient, and will form a better stump.

The leg may be amputated either by the circular incision, or with a flap. When the operation is performed below the calf of the leg, it is sometimes difficult or impossible to turn up the integuments, in consequence of the portion of the leg, which is situated above the incision, being considerably larger than that from which the integuments are raised. To obviate this difficulty, the author practises two perpendicular incisions, one before, the other behind, so as to form two flaps of the length of one-third the diameter of the leg.

When the operation is performed in the second manner, the flap must be formed of the muscles and integuments of the calf of the leg, because, in front, there are not sufficient soft parts to cover the face of the stump. This may be done in the manner practised by VERDUIN,

by cutting from without inwards, or according to the method more generally resorted to in modern times, of transfixing the fleshy part of the leg, and forming a flap by cutting from within outwards and downwards. The following is the plan recommended by our author.

"The operator, placed on the inner side of the leg, grasps, with his left hand, the calf of the leg, in such a manner as to have the index finger fixed upon the fibula, when he wishes the point of the knife to come out, while the rest of the fingers and the palm of the hand are placed upon the posterior and internal part of the calf of the leg, so that he can draw the integuments and muscles backwards. A large double-edged amputating knife is then introduced immediately behind the inner margin of the tibia, at the point at which the bones are to be sawed, from whence it is to be thrust through the soft parts, while they are drawn backwards with the left hand, so that the point shall be brought out by grasping the posterior face of the fibula, at the point designated by the index finger. With a sawing motion of the hand, the knife is then to be carried downwards, in such a direction, that by cutting itself out, a flap will be formed of the length of two-thirds the diameter of the leg. With a convex-edged scalpel, the operator is next to extend a semilunar incision across the front and outer part of the leg, the extremities of which should intersect the first incision, half an inch below the point at which the bones are to be divided. The integuments should then be dissected to a level with the base of the flap, and the latter being turned up, and supported by an assistant, the soft parts situated between the bones are to be divided with a common catlin." p. 614.

This stage of the operation completed, the bones are to be sawed in the usual way. The author, however, observes very correctly, that where both bones are sawed at the same level, the fibula generally projects beyond the extremity of the tibia, so as sometimes either to protrude through the integuments, or keep up violent inflammation, by pressing against them. The saw should, therefore, be so conducted, as to divide that bone at least half an inch higher than the other, which is generally practicable, or a small portion of the fibula should be removed by means of a common metacarpal saw, while its end is held steady by an assistant, with a pair of common forceps.

We have generally preferred this method of amputating the leg, and although we have practised it frequently, we have never seen the sloughing of the flap, which has been urged as an objection against it. We think it decidedly preferable to the operation by the circular incision, as it forms a better stump, heals more readily, and subjects the patient to less pain. We are always cautious, however, to make the flap of sufficient length to cover the face of the stump, without straining the integuments, and in transfixing the member, we generally make the point of the knife describe the arch of a circle, the concavity of which is directed towards the bones, while the soft parts are drawn forcibly backwards with the left hand. By this means the

flap is slightly hollowed at the base, so that when it comes to be applied to the face of the stump, the muscles do not project beyond the skin, which they are sometimes apt to do, if this precaution be neglected. We also saw off a small portion of the anterior angle of the tibia, by carrying the saw in an oblique direction, either before or after the bone is sawed through. This practice, which is adopted by many of the French surgeons, is of considerable importance, for the sharp angle of the bone, if suffered to remain, is apt to project through the integuments.

We shall pass over many important articles, abounding with valuable information, and drawn up with much ability, to consider the subject of aneurism.

Aneurisma, (*Schlagadergeschwulst*, *Pulsadergeschwulst*,) is, according to the author, generally defined a pulsating tumour, filled with blood, and communicating with the cavity of the heart, or some artery. In the first case, it is called a cardiac, and in the latter arterial aneurism. Aneurisms are, moreover, divided, according as they are formed by a simple dilatation of the parietes of an artery, (*Dilatatio arteriæ*, *S. Arteriochhalasis*.) or by a rupture of the tunics of the vessel, (*Ruptura arteriæ*, *S. Arteriodialysis*, *S. Arteriorhexis*.)

GALEN and after him PAULUS AEGINETA recognised both these species of aneurism; but at a later period it was inferred by AETIUS, ORIBASIIUS, ALBUCASIS, and ACTUARIUS, from the diffused character of the tumour, that the blood was merely extravasated beneath the integuments, this act taking place in consequence of either *anastomosis*, *diapedesis*, or *diacresis*.

Aneurisms are furthermore subdivided according to their nature, form, situation, symptoms, complications, &c.

1. *True Aneurism*.—This consists in a morbid dilatation of all the coats of the vessel, and may be partial or complete, according as a small portion, or the entire circumference of the vessel is implicated. The latter is divided into spheroidal, or cylindrical, according to the configuration of the tumour; into circumscribed true aneurism, where the contour of the tumour is abruptly and distinctly defined, and diffused true aneurism, where the circumference is lost in the surrounding parts. The possibility of the development of aneurisms of this class has been fully established, notwithstanding the doubts of some pathologists on the subject:—1. By the researches of the most skillful anatomists; 2. By the development of a general aneurismatic diathesis, as observed by MORGAGNI, HALLER, MATANI, SUMMERING, E. HOME, TARTIA, MICHAELIS, and others; 3. By the dilatation of the collateral vessels, which takes place after a ligature

has been applied to the main trunk of an artery; 4. By the frequent observation of an enormous dilatation of the aorta and pulmonary arteries of some amphibious animals; 5. By what takes place in that form of disease called aneurism from anastomosis.

SCARPA, as is well known, objects to this division of aneurisms into true and false, although he does not deny that the vessels are susceptible of having their entire circumference dilated in the manner here represented. These dilatations, however, he does not consider as participating of the nature of aneurism, which he conceives is always attended with a rupture or destruction of the internal and middle bodies of the vessel, and the subsequent dilatation of the cellular, (which he thinks does not appertain properly to the artery,) to form the walls of the sac. These ruptures he represents as generally occasioned by an ulcerative, earthy, fungous, or steatomatous degeneration of the coats of the vessel, and the simple dilatation he thinks occurs much less frequently than has been generally represented. In favour of this opinion, he urges the following arguments; 1. The slight elasticity of the proper arterial tunics; 2. The obstacles furnished by the degenerations to which they are subject, which disposes them to give way rather than to become dilated; 3. A careful examination of the structure and properties of the aneurismal sac, which does not present characters correspondent with those developed by simple dilatation. Notwithstanding all these objections, it has been ascertained by repeated examination, that tumours formed at first by a simple dilatation of the tunics of the artery, take on all the characters of aneurism, and when left to themselves, eventually lead to the same termination, as those which are developed in the manner represented by Scarpa. Such cases have been detailed by MALPIGHI, MORGAGNI, SANDIFORT, HUNTER, LAENNEC, HODGSON, NAEGELE, ERHARDI, and many other pathologists. They take place more frequently in the aorta, and other large deep-seated arteries, than upon the superficies of the body, and in some instances attain an enormous magnitude.

2. *Spurious or false aneurism.*—This form of the disease consists in a partial destruction of the continuity of a vessel, and the extravasation of the blood in the surrounding parts. It is called a circumscribed, or consecutive, false aneurism, (*cysticum, s. saccatum, s. consecutivum, s. secundarium,*) when it is occasioned by a destruction of the internal and middle coats of an artery, with a dilatation of the external, or cellular coat, to form a sac; but when all the coats of the vessel are simultaneously ruptured, and the blood is diffused

into the adjacent parts, it forms what is called a primitive, or diffused, false aneurism.

3. A mixed aneurism, (*A. herniosium*,) is that form of the disease, in which the outer tunics of an artery are destroyed, while its inner tunic is protruded through the aperture in form of a small sac, as takes place in the cornea, in the affection designated *ceratocele*. Its occurrence has been doubted by some pathologists. Dupuytren and Dubois, however, report cases.

4. Varicose aneurism.

5. Aneurism from anastomosis—Telangiectasis.

6. Spongy aneurism—Fungus hæmatodes. Band. 2, p. 5. *

The treatment of aneurism is divided into medical and surgical, or pharmaceutical and operative. Under the first head are included diet and regimen; the free abstraction of blood, the long-continued employment of digitalis, the application of ice to the part, and, in short, all those means that are calculated to keep down the force of the circulation, so as to favour the development of an extensive coagulum in the sac, and the subsequent obliteration of the vessel, or the sac itself. To effect a cure by medical treatment great perseverance will be necessary, and the patient must be kept in a constant state of quietude and immobility, and have his system reduced by blood-letting and diet, until it is, to use the language of HIPPOCRATES, *siccissimus et persanguissimus*. Not much reliance can, however, be placed on the medical treatment of aneurism. To obliterate the diseased vessel, or divert the current of blood from the sac, surgical means must generally be resorted to. These are variable, but all have the same object in contemplation. The following scheme, drawn up by the author, will present a pretty fair synopsis of the usual surgical means resorted to for the cure of aneurism.

A. *By Compression.*

It differs principally from the treatment by ligature in this, that the compression acts in a lateral direction, whereas the force of the ligature is circular.

I. Compression of the tumour itself. (J. DE VIGO.)

II. Compression of the trunk of the vessel leading to the tumour. (BLIZARD, BOYER, RICHTER, HEBENSTREIT, &c.)

III. Compression of the trunk of the vessel coming from the tumour. (VERNET.)

IV. Compression of the entire member by bandage. (GENGA, THEDEN.)

B. Operative Procedures.

I. Ligature of the aneurismatic vessel.

1. With a simultaneous operation upon the sac.

a. By opening the sac, and evacuating its contents.

a, a. Previously to placing a ligature above and below it.
(*ANTYLLUS.*)

b, b. After applying a ligature above the sac. (*AETIUS, PAULUS AEGINETA, GUIELLMEAU.*)

c, c. After applying a ligature both above and below the sac. (*BERTRANDI, BOYER.*)

The methods *b, b,* and *c, c,* are not practised at the present day, inasmuch as the operation is attended with many difficulties, and by the method *b, b,* there is generally a dangerous hæmorrhage, by the return of the blood through the lower orifice of the vessel.

b. Extirpation of the sac after having applied a ligature above and below it.

a, a. Extirpation of the entire sac. (*AETIUS, PURMAN, PLATNER, PALLAS, SPANGENBERG.*)

b, b. Partial extirpation. (*PALLAS.*)

2. Without interfering with the aneurismal sac.

a. By the application of a ligature between the heart and the tumour.

a, a. In the vicinity of the tumour. (*ANEL.*)

b, b. Remote from the tumour. (*HUNTER.*)

1. By gradually tightening the ligature. (*DUBOIS.*)

2. By dividing the vessel between two ligatures. (*TE-
NON, BELL, MAUNOIR, ABERNETHY, and proba-
bly CELSUS.*)

b. By the application of a ligature between the swelling and the peripheric extremity of the vessel. (*BRASDOR, DESAULT, A. COOPER, WARDROP, HOME, BUSHE, MOTT, &c.*)

II. By approximating the sides of the vessel by compression applied to it alone without implicating the surrounding parts.

1. By means of a particular instrument. (*ASSALINI.*)

2. By means of a roll of lint, a piece of cork, a small block of wood, &c.

III. By incision of the aneurismal sac with the subsequent employment of pressure. (*GUATTANI, BROSSARD, SABATIER, &c.*)

IV. Cauterization of the tumour.

1. By the actual cautery. (*LANFRANCHI.*)

2. By the potential cautery. (*FALLÖPIA.*)

To this enumeration of the author we will add—

V. By transfixing the artery with a needle. (VELPEAU.)

1. With a needle brought to a white heat. (BUSHE.)

Many of these curative procedures are now no longer employed, the method of Hunter having taken the place of nearly all the others. It presents many advantages which entitle it to the preference. It is more easily put in execution; the ligature is always applied upon a sound portion of the vessel, and the patient is not submitted to the painful incisions, and the extensive inflammation and suppuration developed by most of the other methods of operating, and, in addition to all this, is less liable to secondary hæmorrhage. There are but few cases to which it is not applicable, and these only arising from the proximity of the aneurism to the heart, by which sufficient space is not left to apply a ligature to the cardiac extremity of the vessel. Under these circumstances, the plan originally suggested by Brashdor, of applying the ligature on the distal side of the tumour, may be resorted to, and has been repeatedly practised with success, by Wardrop, Home, Bushe, Dupuytren, Mott, and some others. The method, by transfixing the artery with a needle, is only applicable to aneurisms occupying the small vessels, and will be found very useful, when the needle is used hot, for the removal of telangiectasis, where the tumour is small. (Bushe.) Several important cures have been effected by the employment of *pressure of the arteries*, and a considerable number by copious depletion, extreme low diet, and the application of ice to the tumour.

We shall not follow the author through all his observations upon the treatment of aneurism, which, suffice it to say, are generally highly judicious and satisfactory. It will be sufficient, in illustration of the usefulness of his labours, to describe the method of taking up some of the most important arteries for the cure of the disease.

1. *Ligature of the axillary artery, below the clavicle*, (*Desault, Pelletan, Keate, Chamberlaine, &c.*)—This operation is called for, when the aneurism is so small, or is situated so low down, that sufficient space remains to admit of its being secured between the clavicle and the point at which the vessel engages itself beneath the pectoralis minor muscle, or where that vessel has been wounded so high up, that the hæmorrhage cannot be arrested by operating in the axilla.

The patient being placed in a sitting or horizontal position, is to have his arm extended to a right angle with the body, so as to put the pectoralis major muscle on the stretch. An assistant placed behind him, inclines the head to the opposite side, and remains ready to compress the artery, where it passes over the first rib, by means of

Erlich's blunt hook, in case of any alarming hæmorrhage taking place during the operation. According to Rust, the incision should be commenced immediately beneath the middle of the clavicle, and extended outwards towards the coracoid process, along the furrow situated between the deltoid and pectoralis major muscle. This incision should be from two and a quarter to two and a half inches long. It will divide the platysma myoides, half the fibres of the clavicular portion of the large pectoral muscle, and the tendinous portion of the pectoralis minor. The borders of the wound being held asunder by an assistant, the surgeon, with his finger, isolates the artery from its connexion with the brachial plexus and the sub-clavian vein, after which the ligature is to be passed beneath the vessel by means of an aneurismal needle, and drawn tight upon it and tied, while the knot is pressed down by the tip of the finger. Should the external thoracic be cut, as will sometimes be the case, it must be secured.

Langenbeck makes an incision of three or four inches in length, the central part of which is situated beneath the middle of the clavicle, while its outer extremity reaches the deltoid. By this method, the cephalic vein is apt to be wounded. Band. 2, p. 61.

A much better method of operating than either of these, is that proposed by Marjolin, and recommended by Lisfranc. The incision commences two and a half inches on the outer side of the articulation of the clavicle with the sternum, and is carried outwards upon the line which separates the clavicular from the sternal portion of the pectoralis major muscle. The arm is then brought to the side, to relax the muscle, and the surgeon isolates and secures the vessel with the ordinary precautions.

2. *Ligature of the artery above the clavicle*, (*Ramsden, White, Tugwells, B. Cooper, &c.*)—This operation is necessary when the aneurism is situated so high up, or is so large, that the vessel cannot be secured beneath the bone. It is easily executed in the dead subject; but on the living, where the clavicle, together with the scapula, is so much thrown upwards, by the magnitude of the aneurism, it is attended with many difficulties. Hodgson and Rust place the patient in the same position as for securing the artery below the clavicle. The shoulder being carried backwards, the surgeon commences an incision near the outer border of the sterno-mastoideus muscle, which is carried directly outwards behind and parallel with the clavicle, to the extent of two, or two and a quarter inches. This incision is carried through the skin and platysma myoides. The cellular tissue and glands are then to be separated with the finger, or Cooper's

scissors, and the artery is to be secured where it occupies the angle formed by the anterior scalenus muscle and the first rib.

Dupuytren and Graefe, with a view of giving extent to the incision inwards, and facilitating the elevation of the vessel from its bed, divide the attachment of the scalenus muscle upon a grooved directory. This procedure can seldom be necessary, and should be avoided, except where it becomes indispensable, as in very fat persons, on account of the danger of dividing the phrenic nerve, or the subclavian vein. LISTON makes first an incision of two and a half inches, parallel with the clavicle, and forms a second, which is perpendicular, of an inch and a half in length, upon the outer border of the sterno-mastoid muscle, and which falls upon the inner extremity of the first. Rust extends an incision of two inches in length in an oblique direction outwards and downwards, towards the middle of the clavicle, so as to fall upon the triangular space formed by the sterno-mastoid muscle, and the posterior belly of the omo-hyoideus. This method will sometimes afford greater facilities than those which have been detailed, where the clavicle is forced much upwards. Care should be taken not to wound the external jugular vein. p. 63.

3. *Ligature of the external iliac artery.*—We shall not detail all the methods of taking up this artery, which have been laid down by our author. That of Sir A. Cooper is the most simple, and the following, proposed by Langenbeck, does not differ materially from it in principle. An incision of four fingers' breadth in length, commencing two fingers' breadth from the anterior superior spinous process of the ileum, and a little higher up, is to be extended obliquely downwards and inwards towards the rectus muscle, and end one finger's breadth above Poupart's ligament. The tendon of the external oblique muscle is then to be divided in the direction of the first cut, having the internal oblique and transversalis entire. These muscles are to be detached from the peritoneum, and turned up by means of a blunt hook, while the artery is isolated and secured in the usual manner. p. 71.

4. *Ligature of the subclavian artery before it escapes between the scaleni muscles.*—Sometimes the aneurism is situated so high up upon the artery, that it cannot be tied between the clavicle and the scalenus muscle. Under these circumstances, it becomes necessary to search for the vessel before it reaches that muscle. This is, however, attended with many difficulties, and involves considerable hazard. In front of the artery, we have the pneumogastric and phrenic nerves, and the subclavian vein, which, when it is distended, covers the vessel at the point at which it has to be exposed. Behind it is the infe-

rior cervical ganglion of the sympathetic; below it, the pleura, and on the left side, the thoracic duct arches over the upper part of the artery, to reach the subclavian vein. On the right side, the posterior part of the vessel reposes in contact with the recurrent nerve.

A horizontal incision is to be made immediately above the sternal end of the clavicle, which is to be carried through the skin and platysma myoides muscle. A grooved directory should next be passed beneath the clavicular portion of the sterno-mastoid muscle, which must be divided. With the handle of the scalpel, the loose parts about the vessel are to be separated, so as to expose it if possible, on the inner side of the point at which the inferior thyroid and vertebral arteries are given off. The ligature should not be applied between the origin of these vessels and the scalenus, inasmuch as the space is so small, that in consequence of the proximity of the ligature to the collateral arteries, a coagulum could not form to obliterate the trunk of the vessel.

5. *Ligature of the innominata*.—ALLAN BURNS suggested the practicability of securing this vessel in the living subject, and the operation was actually performed by Professor MOTT, of New York, in 1818, and subsequently by Professor GRAEFFE, of Berlin, in 1822. The first case survived twenty-six days, and the last sixty-seven days. More recently, the operation has been performed by Professor HALL, of Baltimore, but in consequence of the enlarged and diseased condition of the vessel, and its intimate adhesions with the surrounding parts, in attempting to isolate it, so as to pass the ligature, its coats gave way, and a profuse hæmorrhage took place, and as no time was to be lost, a bold attempt was made to pass the ligature by means of Wiesel's needle, but the bleeding still continuing, the wound was filled with sponges, which commanded the flow of blood, and the patient was put to bed. Though much exhausted, reaction took place, and he survived until the fifth day.

As Professor Mott's method of performing the operation is well known, we shall only describe that of Graefe. The patient being placed as in the operation on the carotid artery, he commenced an incision upon the tracheal margin of the sterno-mastoid muscle, about half an inch above the sternum. This was carried upwards to a sufficient extent, as in the operation for exposing the carotid. With the index finger of the left hand, passed between the sterno-mastoid and the sterno-hyoid muscles, the soft parts surrounding the vessel were separated a little above the sternum, and the ligature was passed under the vessel, by means of an instrument similar to that of DESCHAMPS, and tied about an inch above the arch of the aorta.

•Mr. KING, of London, recommends that the incision should be com-

menced immediately above the jugulum sterni, about fifteen or eighteen lines from the inner border of the sterno-mastoid muscle. This is to be carried through the skin and platysma myoides, and upon the line of division between the two sterno-thyroid muscles, and finally through the profound cervical fascia. The artery may then be easily exposed between the sterno-thyroid muscle and the trachea. This operation, which was, we believe, first suggested by Mr. King, in 1828, had already been recommended by Professor G. M'CLELLAN, of Philadelphia, in 1820. BUJALSKY recommends, that after having made the first incision as practised by Graefe, the sterno-hyoid and sterno-thyroid muscles should be cut across, immediately above the sternum, with a view of facilitating the application of the ligature. Band. 2, p. 82.

We have selected these examples from many others, because the vessels are large at the points designated, and the operations instituted for securing them attended with considerable difficulty. We have entered but few comments, because the author has generally laid down the various plans generally recommended by the most distinguished surgeons, and if he has in some cases omitted to enumerate some operative procedures to which we would give the preference, we do not consider the omission very important, as those which he has recommended are generally judicious.

Having advanced thus far, it is time we should bring our remarks to a close. It will be seen that we have noticed but a few of the topics comprised in the five volumes before us. Indeed, we have not extended our analysis beyond the second, and even within that space, we have been obliged to pass over many articles that deserved to be noticed. We have said enough, however, to enable our readers to form some idea of the character of the work, with which we need scarcely say, we have been, ourselves, much gratified. There is, indeed, something peculiarly grateful in the examination of German works of merit devoted to medical science. Critically and profoundly conversant with the subjects of which they treat, their authors never fail to award due credit to others. There is perhaps no people on earth so extensively read as the Germans, and assuredly none so ready to acknowledge the labours of their brethren both at home and abroad. They are constantly referred to, whether contained in the obscurest journals, or the most elaborate treatises, and always with candour and liberality. In conclusion, we will merely observe, that we consider the present work highly creditable to the German medical literature, and its execution honourable to its distinguished authors.

E. G.

* See Medical Recorder, of 1820.

ART. XV.—*Lithotrity and Lithotomy compared; being an analytical Examination of the present methods of treating Stone in the Bladder, with suggestions for rendering lithotrity applicable to the disease in almost all its stages and varieties, and remarks on the general treatment of Gravel and Stone.* By THOMAS KING, M. D., M. R. C. S. &c. 8vo. London, 1832.

THE announcement of the invention of a process for destroying the stone in the bladder, and thus relieving the patient of a painful disease, without having recourse to the knife, like that of every other improvement in medicine or surgery was hailed with enthusiastic applause by a few, and received with distrust by the majority of surgeons; and while the former lost no time in testing the efficacy of the new operation, the latter not only abstained from imitating them until the favourable results proclaimed had been generally confirmed, but in several instances, unhesitatingly decided that the free introduction into the bladder, through the urethra, of a straight instrument of sufficient size, as well, indeed, as the other steps of the operation, could not possibly be effected with success or with safety to the patient;—a conclusion in which they were soon joined by a few of the more sanguine who had failed in their attempts. When, however, it was ascertained that M. CIVIALE, and other surgeons in France, succeeded daily with the new instruments—when the operation was witnessed by surgeons, who, from different parts of the continent of Europe, from Great Britain and America, flock annually to the French metropolis—when, moreover, the practicability of the operation was demonstrated out of France, not only on the dead, but also on the living subject, the individuals who had early advocated its employment were no longer held in the light of visionaries; the opposition it had encountered and which was founded on theoretical ground and preconceived notions was gradually withdrawn; and the failures which had been met with, were referred to their true causes—the inexperience of the operators, and, in some cases, the improper construction of the instruments employed.

The British surgeons, in particular, seem not only to have ceased to regard the subject of lithotrity with distrust or lukewarmness, but to have in great measure yielded their assent to the practicability and comparative innocuousness of the process, and even to the superior advantages of its application in a large majority of cases which before could only look for relief to a highly painful and dangerous operation. Even

in this country, where we have not, like the English, enjoyed the advantage of witnessing the application of the new instruments by professed and dexterous lithotritists, the few successful trials made by our own surgeons, some of whom have paid considerable attention to the subject, and practised in France under the eyes of MM. CIVIALE and LE ROY; aided by the mass of testimony in its favour which may now be collected from a number of eye witnesses and from various publications, have, in great measure, succeeded in silencing the opposition of many who had originally sneered at the operation and stigmatized it as a piece of French humbug.

These remarks have been elicited by a perusal of the volume before us, the author of which, after completing his surgical education at the Hôtel-Dieu of Paris, is at present engaged in the practice of his profession in the great metropolis of his native country. Although Dr. King may, for what we know, be accused, by the detractors of lithotrity, of having imbibed, during his long attendance on Parisian hospitals, a number of French pathological and therapeutical notions, a circumstance by the way, which, if founded, would not, in our eyes, detract in the least degree from his claims to the respect of his professional brethren, his work, taken in conjunction with other recent publications on the same subject, will, we have no doubt, prove highly serviceable, by tending to remove a portion of the prejudices still prevailing in relation to lithotrity; while, at the same time, it serves to indicate the degree of attention which that operation is, at present, attracting in England. At any rate it is a production which reflects much credit on the author, and deserves to be attentively perused by every surgeon who desires to familiarize himself with the comparative advantages of the various modes of affording relief to calculous patients. As we presume that few physicians in this country will have, at least for some time, an opportunity of consulting the volume in question, we have proposed to lay before our readers a brief summary of its contents.

The first part of the work contains an able and concise description of the urinary apparatus—of the bladder and peritoneum, particularly with exact measurements of its different apertures. On this portion of Dr. King's researches, it will not be necessary to dwell long. He remarks, that the size of the bladder depends in no small degree upon the quantity of urine it has been accustomed to contain—persons who habitually retain their urine long having large bladders, and the contrary being observed when this fluid is frequently voided; the summit of the bladder is sometimes extraordinarily large, while the lower and back region is always capacious.

"We now come to the relative position of the bladder. It is, however, of extreme importance, that the surgeon should first know that it is a fixed organ, not a floating one. There is one part of it as immoveably fixed as any soft parts in the body; yet this fact seems to have escaped anatomists, or to have appeared to them either too evident or of too little consequence to demand particular notice. The bladder is fastened at its neck, to the pelvis, nearly as strongly as tendons are to the bones into which they are inserted; and in this respect, it differs materially from every other organ in the abdomen. Its anterior part is fixed by those strong fibrous fasciculi described by authors as the anterior ligaments of the bladder; by the triangular ligament of the urethra, which is continued along the membranous portion of the urethra with the capsule of the prostate gland; and indeed, by the whole of the strong fascia of the pelvis. I do not mean to affirm that these parts are as strong as tendons, or ligaments; but they certainly yield as little without laceration or injury; and as this is one of the most important facts connected with the treatment of stone, I particularly solicit attention to it."

Dr. King remarks, that above the symphysis, the anterior region of the bladder corresponds, opposite the linea alba, to the fascia transversalis of Sir A. COOPER; but that whenever that organ rises fairly an inch and a half above the pubis, it is in contact with the peritoneum lining the wall of the abdomen, in addition to its own peritoneal covering.

"In other words; the shining surface of the peritoneal covering of the bladder is in contact with the same surface of the peritoneum lining the muscles of the abdomen; so that an instrument, to penetrate this part of the organ, must traverse the peritoneum twice."

Dr. King is induced to lay claim to the discovery of this fact, because all the authors he has read state, that where the bladder is distended so as to rise above the pubis, it passes to a considerable extent between the peritoneum and the abdominal muscles, or rather between it and the fascia transversalis. He was led to this discovery from having seen the peritoneum wounded in the high operation; an accident he could not explain, till he observed, on investigating the subject, that when the bladder is distended by insufflation, it rises in the proper cavity of the peritoneum.

"I do not pretend that a small part of the bladder, thus distended, may not be uncovered by the peritoneum above the pubis; but I positively assert, that this organ, (and in old persons especially,) expands in the abdomen, in some such manner as the uterus does in gestation, by a gradual yielding of its peritoneal, as well as of its other coats; and not by detaching the peritoneum, as it has been hitherto supposed from the abdominal parietes."

In an interesting chapter on the organization of the bladder and its excretory duct, Dr. King makes the following remarks in reference to the extent to which the peritoneum descends into the pelvis.

After stating that this membrane passes from the anterior wall of the abdomen over the summit of the bladder, and then lining its posterior surface, lateral regions and bas fond, is reflected upon the rectum and sides of the pelvis, he says—

“By this reflexion of the peritoneum from the bladder to the rectum, the inferior part of the pelvis is closed, and a sort of pouch or cul-de-sac is formed between these organs.” “The middle part of this pouch advances within half an inch of the posterior margin of the prostate; whilst it recedes laterally, so as scarcely to cover the posterior extremities of the vesiculæ seminales. By this disposition, the most depending part of the peritoneal reflexion represents a quick curve, its convexity being turned forwards, towards the prostate. The peritoneum is not constantly reflected at the same distance from the prostate; in some subjects it does not come within an inch and a quarter of it; in others it advances as far as its posterior margin.”

One of the objections originally urged against the operation of lithotrity, was, as some of our readers doubtless know already, founded upon the supposed impossibility or great difficulty of introducing a straight instrument along the urethra into the bladder. This objection, however, has been happily set so far at rest by the concurrent testimony of numerous surgeons, that at present few need be informed, that the passage of such instruments is not only practicable but easily effected. So true, indeed, is this, that there are not wanting surgeons who never, or very seldom, resort to curved instruments, either for sounding or other purposes. Dr. King, while perfectly aware that no difficulty is to be apprehended in the use of straight sounds, is not one of those who would completely discard the employment of curved ones. His sentiments on the subject will be ascertained from the following remarks, which we extract from his chapter on “the urethra considered in respect to its dimensions, form, and relations.”

“It has long been a question in dispute whether the urethra is straight; and authors do not agree better about its direction; hence the difference of opinion respecting the form of catheters, and the variety of rules for introducing them. The urethra is, strictly speaking, a straight canal; that is, when detached from the penis and stretched in the direction of a line which would be a continuation of that of the inner surface of the basis or inferior region of the bladder. Now, although from its connexion with the penis it cannot in all individuals and at all times be made perfectly straight, the penis, which must be extended with it, not yielding sufficiently; yet, it may be drawn out so as to admit of the introduction of a straight instrument, which, when in the bladder in its natural position, will have precisely the direction of a line drawn from the inner surface or posterior edge of the trigonal space to the hole in the triangular ligament, and continued forward. This line will be nearly parallel to the axis of the superior aperture of the pelvis. It is solely on account of the difference in

length and elasticity between the urethra and penis that the canal can be better stretched in most cases on a curved than on a straight cathéter. But the curved instrument is not preferred merely for this reason; it has the advantage, when introduced into the bladder, of occupying its centre; whereas, the end of the straight one cannot be carried from the bottom of the organ, without considerable pressure on the upper part of its neck, and on the lower part of the edge of the foramen in the triangular ligament.

“A straight sound, when an effort is made to direct its end towards the centre of the bladder, represents a lever, the fulcrum of which is the lower margin of the opening in the triangular ligament, the resistance, the upper or rather anterior wall of the neck of the bladder, and the power the hand of the operator. With a curved instrument the whole of the bladder may be explored; its summit may be reached without difficulty. this is quite impossible with a straight staff.”

After giving an accurate account of the dimensions of the pelvis in reference to the operation of lithotomy, Dr. King passes to the subject of that operation as performed in the perineum, and describes the modifications which he thinks might be advantageously made in the mode of performing it; not forgetting to notice the alterations he has made in the *lithotome caché* of FRERE COSME. This instrument he greatly prefers to the gorget, as well as to all instruments which are thrust through the prostate from the urethra; because it is impossible to measure precisely the extent of the incisions they make.

“It is stabbing in the dark. The position of the end of the staff cannot be always appreciated with certainty, and however successful some operators may have been who use the gorget, nothing but great good luck can preserve them from dangerous accidents.”

Dr. King dwells particularly on the incision of the prostate, and on the extent to which it can be carried with safety to the patient. He remarks, that of the patients who submit to the lateral operation, one in seven or eight dies; and that in almost all those cases which have a fatal issue, death is produced either by the force used to extract the calculus, or by too extensive an incision in the prostate. If, he adds, the incision is small in comparison with the stone, death will follow from the violence done to the bladder and surrounding parts in the extraction; and if the incision is made sufficiently extensive to admit of the fair extraction of a stone one inch and a half in each of its two lesser diameters, death will follow from infiltration of urine.

“In criticising the lateral operation, the first thing to be attended to is, then, the volume of the stone; success or failure depends upon it. If the foreign body never exceeded three inches in its lesser circumference, so that the incision in the prostate might be limited to three-quarters of an inch, or a few lines more, the operation, when well performed, would seldom or never be fol-

lowed by fatal consequences. When it measures four inches and a half in its lesser circumference, or that (?) the sum of its two lesser diameters amounts to three inches, the patient may recover, but the chances are very much against him; and when it exceeds this volume, death is almost sure to be the result of the operation. The surgeon is in this dilemma—he must either use force or make a long incision; the former lacerates the prostate and cellular tissue, bruises the bladder, and stretches its membranes, and shocks the nervous system; the latter prepares the way for infiltration of urine: both are fatal nearly to the same degree.”

To these conclusions Dr. King has arrived from considering that opposite to the prostate the space between the bones is only one inch and three-quarters; that the incisions being only made on one side, the whole of this space is far from being available; that more than an inch and a half will seldom be obtained by moderate pressure, and that the gland from its situation will not allow passage to a stone above the size stated without tearing—the effect of which is certain death.

“The experienced surgeon will admit,” he says, “that in one-half the number of cases which terminate fatally, death is the result of force used to extract the stone; and whoever peruses attentively the history of such cases detailed with the *post mortem* examinations, will come to the same conclusions.”

Dr. K. points out the dangers of long incisions—infiltration of urine and its effects, and next remarks that it would be difficult to say geometrically how long the incision may be made without danger, and that he will not presume to draw precisely the line, on one side of which is safety, and on the other death. He believes, however, that the danger of a wound in the prostate is in direct ratio to its extent, and that an incision necessary for the extraction of a stone measuring an inch and a half in its two lesser diameters, puts life in imminent peril.

“Of the two evils—the use of force, or a long incision—there can be no doubt which is the minor; since the latter subjects the patient to only one serious danger, whilst by the former he is exposed to many fatal consequences.”

Dr. King has entered somewhat fully, in separate chapters, on the operation of lithotomy by the rectum and on the high operation; of neither of which he seems to entertain a favourable opinion. He next passes to the consideration of lithotrity—which it is the object of his work to compare to the other methods. After presenting a brief sketch of the history of that operation; after alluding to the cases of the Monk of Cîteaux and of Colonel Martin, both of whom are affirmed to have devised, and cured themselves of stone in the bladder by means somewhat analogous to those now adopted for lithotrity; as

well as to Mr. Gruithuisen, who, as early as 1813, proposed a method for acting upon a stone in the bladder by trituration, our author adds, that in 1819 his countryman, Mr. Elderton, conceived the idea of lithotrity, and invented ingenious instruments for the operation. He, however, admits that here Mr. E. stopped, and gives credit to M. Le Roy and M. Civiale for being the first who constructed, and succeeded with, the instruments now in use.

It cannot be expected that we should undertake here a description of the process of lithotrity, or of the instruments employed in that operation, inasmuch as these subjects have long ere this been laid before the medical profession in this country, and have been several times noticed, more or less in detail, in this journal. The remainder of the present article will therefore be occupied with an account of the sentiments entertained by Dr. King in relation to the comparative advantages of lithotrity and lithotomy. The former of these operations, as it is now fully ascertained, is seldom applicable whenever the stone exceeds an inch and a half in two of its diameters. But as calculous patients are becoming every day better convinced of the manifold advantages it presents;—of the facility with which it is performed;—of the comparative absence of danger and pain attending it, when resorted to early, and before the stone has had time to attain considerable size, or the bladder has become irritable or inflamed, we have just reasons for hoping that such individuals will not only feel less reluctant to give it the preference over every other method, but finally appreciate the advantage of resorting to it at a suitable period; and that by this means the number of cases in which it is found altogether inapplicable, or in which it must be resorted to frequently, will be materially lessened. The experience of M. Civiale, on this point, is highly encouraging; for whilst each year the number of persons who apply to him for the purpose of availing themselves of the advantages of the operation, increases progressively, the proportion of cases in which the latter is found inapplicable, as well as the time required for a perfect cure, diminishes very considerably.

Our readers are probably aware that the instruments most in use at present consist of the three-branched forceps of M. Civiale, and the four-branched instruments of Baron HÉRTELLOUP. It has been, for some time, a subject of dispute among operators which of these instruments should be preferred—some deciding in favour of M. Civiale's; others giving the preference to that of the Baron. Dr. King has no hesitation in stating that there is only one case in which the four-branched instrument ought to be preferred;—where the calculus is composed of oxalate of lime, and is very hard. He remarks, that the

instrument with which it has been proposed to destroy the stone by excavation, is much more liable to break than the three-branched forceps; and that the one invented to act by concentric pulverization is open to the same objection, besides being inadequate to the purpose for which it was intended. Nevertheless he would assuredly recommend the four-branched instrument for the treatment of all large round stones, of whatever composition, if excavation, or still more, if concentric pulverization could be employed with efficacy and safety; but he contends they cannot.

“When an excavator shall be made so strong that there will be very little risk of its breaking, and so well as to reduce a stone to a mere shell, it will deserve to be adopted with the four-branched forceps, in preference to the drill and the three-branched instrument, whenever the calculus is large and round. But we are of opinion, that the most rational and safe plan of all for destroying calculi, would be that of concentric pulverization, were the saw sufficiently perfect to carry it into effect. Some of the strongest objections to lithotrity would then be obviated; there would be no rough fragments left to irritate the bladder; and as the instrument would leave the surface of the stone smooth, the operation, every step of which would bring relief to the patient, might be interrupted and deferred, at any time, with impunity.”

Dr. K. likewise considers the four-branched forceps better adapted, than any other, to overcome the difficulty of seizing the stone, without pinching the bladder.

Dr. King advocates the cause of lithotrity on the following grounds:

“The great character by which lithotrity is distinguished from and elevated above lithotomy, is, that it accords far better with the recurrent nature of calculous disorders. When once the kidneys have taken upon themselves to secrete gravel, it is difficult to put a lasting stop to the habit. Whatever means are adopted, there always remains a certain predisposition to resume an action that has before existed, and the slightest causes may occasion a relapse. If then, the disease is liable to return, and to return frequently, it requires a remedy that can be repeated without the risk of life. Such is not lithotomy; but approaching to such appears to be lithotrity. When a patient is cut for stone, the operation puts life in danger; yet, it is no protection against a return of the disease; and as often as it is repeated, so often does the patient risk his life. Lithotrity, on the contrary, does not endanger life. It can be repeated with safety, and applied with effect, at the first moment of a relapse; it has also the great advantage, that the patient can contemplate it without the dread which lithotomy creates, not only in him, but even in the operator himself.

“It was a happy thought, that of reducing a stone in the bladder to a state which admits of its passing away with the urine. While in the form of gravel, urinary concretions are expelled by a natural process, in fact, by the exercise of the organs in which they are lodged; nature has this resource, until they become too voluminous to escape through the *urethra*; what then, can be more rational than to restore to her this power, in making them réassume the form of

gravel, by acting upon the morbid product, rather than by maiming a healthy organ? We do not pretend, that, in the present state of lithotrity, the morbid production can be got rid of without great pain, and some injury to the organ containing it; but this is owing to the deficiency of our instruments, and not to any defect in the plan. Few operations, indeed, are so well founded as lithotrity; and when once we possess instruments a little more perfect than those now in use, stone in the bladder will not be deemed a more serious disease than gravel. The only mode that could possibly be thought of, for accommodating nature at less expense, would be to cause the stone to return to a liquid state; but since there is scarcely a hope of our ever dissolving it in the bladder, our great aim should be to perfect the instruments for its pulverization, and to discover sure means for preventing its reproduction."

Dr. K. next takes in consideration, various objections that have been made to lithotrity, and adduces in answer to them, and in vindication of the operation, a number of observations and arguments, of which we shall here present an outline. Lithotrity has been opposed on the following grounds:—1. The difficulty of seizing the stone. 2. The liability to injure the bladder. 3. The liability of the instruments to break in the bladder. 4. The entanglement of the branches of the instrument in a hole made through the stone, and the impossibility of withdrawing the latter without lacerating the urethra. 5. The irritation of the bladder produced by the fragments of stones left in that organ, and by repetition of the operation; and the danger of a fragment remaining and becoming the nucleus of another calculus.

1. In reference to the first objection, Dr. King remarks, that the difficulty, however great, is to be overcome by patience and by that dexterity which practice gives. Besides, it has been in great measure obviated; for by means of Baron Heurteloup's bed, the stone can almost always be made to roll to the back part of the floor of the bladder, where an experienced surgeon will seldom fail to grasp it.

* 2. Although the coats of the bladder may, by chance, be caught in the forceps by an expert operator, he will discover the accident early enough to avoid doing them any fatal or serious violence.

3. With regard to the third objection, Dr. K. is of opinion, that admitting the accident feared, may have happened once in twenty or thirty operations, it must be attributed to defects in the instruments; and that as these are rendered every day more perfect and less fragile, we may presume the time will come when such an occurrence shall be unheard of. "When it does take place, the patient must generally undergo lithotomy; but even then, he is not in a worse condition than he would have been before the invention of lithotrity."

4. The fourth objection, Dr. K. thinks, may be obviated by some modifications in the instruments, such as having the branches of the forceps separate throughout, as recommended by Messrs. COSTELLO and GUTHRIE, so that, by withdrawing the external tube, they may be removed one at a time.

5. Experience has proved, that the fragments left after the lithrotritic process, do not give rise to inflammation in the large majority of cases. It has also proved, that the frequent application of the instruments, though it subjects the patient to a repetition of pain, has not been productive of the evil apprehended. The object is not so much to cure the disease in the quickest time, or with the least possible pain as to cure it without risk of life; and, if this can be done by additional pain, who would not think it his duty to submit to it? Although relapses are probably more frequent after lithotrity than lithotomy, yet the latter is known not to be devoid of them; and if it does occur after the former, it can only subject the patient to a little more grinding.

"The whole problem is, I know, to cure the disease in the bladder with the least possible pain and danger, in the quickest possible time. But, since we cannot obtain equally those results, and must choose between time, pain, and safety, on the one hand, and danger and promptness on the other, it is our duty to prefer security: time ought, in all cases, to be sacrificed to safety; safety to time, never. My wish is to apply this remark to all plans for curing stone; and I have no hesitation in saying, that had I to choose between an instrument, which would remove from a stone three grains daily, with perfect safety, and one that would destroy it in ten minutes with some danger, I should prefer the former. Time is not to be grudged, when it is to purchase with certainty and safety, freedom from one of the most agonizing diseases. If we can once arrive at the means of destroying a stone at intervals, and by degrees, without danger or inconvenience, it matters little how often they are employed, or how trivial the effect of each application of them. Every grain removed, is so much relief to the patient, who not only ceases to dread the operation, but actually hastens its repetition; he is in the state of mind of one who, engaged in an arduous undertaking, derives, from the satisfaction experienced at every successful step, fresh encouragement to proceed."

Dr. King remarks, that the opponents of lithotrity have not failed to enumerate, at full length, the cases to which it is inapplicable—those where the stone is very hard, or very voluminous, or encysted; and that diseases of the prostate, congenital contractedness and strictures of the urethra, have been much dwelt upon. But adds, that in considering these dispassionately, it will be found, that they do not constitute any thing like a foundation for hostility to the general adoption of the operation. After examining each of these objections,

somewhat in detail, he adds, that after this inquiry into the principal circumstances connected with the treatment of stone, by lithotomy and lithotrity; in which he has attempted to place side by side, their respective dangers and advantages by an appeal to facts, and thus to establish the degree of estimation in which each ought to be holden in practice, his conviction is, that wherever lithotrity can be employed, lithotomy should never be thought of.

“Whether we look at the structure of the parts concerned, at the nature of the disease, or at the results furnished by experience, we are led to the same conclusion. Every thing conspires to establish the superiority of lithotrity, and to place it at an almost immeasurable distance above lithotomy. A wound in the bladder, of itself, endangers life more or less, even when uncomplicated by the serious accidents we have had occasion to notice, and every one of which may separately cause death. On the other hand, the objections that can be made to lithotrity, however numerous, are but as dust in the balance, when weighed with those which belong to the other plan; and were we to attempt to express, in a few words, the verdict imperatively called for, by the testimony of reason and experience, that verdict would be—the abolition of lithotomy.”

Dr. King concludes his work with some useful practical observations on the treatment of calculi of great magnitude and density, and terminates his work with a chapter on the treatment of stone in the female, and one containing general remarks on the medical treatment of calculous disorders. In closing this notice, we must express the high opinion we entertain of the merits of the volume before us, and the hope that every surgeon in this country will, before undertaking the treatment of stone in the bladder, become familiar with the facts and arguments adduced by Dr. King in favour of lithotrity. L.

ART. XVI. *An Essay on the Operation of Poisonous Agents upon the living Body*. By THOMAS ADDISON, M. D. Assistant Physician to Guy's Hospital; and JOHN MORGAN, F. L. S. Surgeon to Guy's Hospital. London, pp. 91, 8vo.

THE experiments detailed in the interesting volume before us, were undertaken without any intention of publication. The results of their investigations have, however, otherwise determined the authors; who discovered—

“In those results, that which is well worthy the attention of the medical philosopher; and which, they are willing to hope, is calculated to throw addi-

tional light upon a subject which must ever deeply concern the physiological the pathological, and therapeutical student."

With the view to render the object and bearing of their work clear and intelligible, the authors have premised some general remarks on the nature and influence of those agents that are usually included under the term of poisons. The definition they give of this term, does not differ materially from that adopted by toxicological writers; it is as follows:—Any substance which, taken in a small quantity into the alimentary canal, or introduced into a wound, or even applied to the unbroken and healthy surface of the body, is capable of producing effects deleterious or fatal to animal life. From this, it will be perceived, that every powerful medicine may be considered as a poisonous agent, which is only rendered beneficial as a remedy for disease by the diminished quantity in which it is administered, and consequently by the diminished influence it exerts upon the system.

"The distinction, therefore, between our most active and useful medicines and poisons, is an arbitrary one; every powerful medicine being, strictly speaking, a poison, when given in sufficient quantity; and most of our poisons being useful and powerful remedies for disease, when administered in regulated quantities. Every substance, then, whether solid, fluid, or aerial, which produces morbid action in the system, is, strictly speaking, a poison. the term, however, is commonly applied to those only of the most active kind."

It is very judiciously remarked, that the immediate impression stamped upon the living powers of the system by poisons, is a matter which must probably for ever remain involved in impenetrable darkness. Nor should this be a subject of astonishment, since such a knowledge would imply a knowledge of the proximate or first causes of vital phenomena. On the other hand, the local and visible consequences resulting from the action of poisons are so readily ascertained by experiment and observation, and are so generally known, that they have rarely afforded ground for discussion or controversy. To neither of these questions, therefore, do our authors desire to direct the attention of their readers. Their object is to investigate another and more interesting point connected with the operation of the agents in question, and which continues to be disputed and obscure. We allude to the medium through which poisonous substances convey a morbid impression to the system.

They remark, that before any sensible effect can be made upon the general system by the application of a poison, it is essentially necessary that an impression should be carried to the brain. The question then is, whether the actual contact of the poison with this organ is necessary for its operation, or whether sympathy between the

nerves of the poisoned part and the brain is sufficient to establish a communication, through which the latter may become affected. In order that the first of these effects—actual contact of the poison with the brain, should be obtained, it is necessary that the substance should be carried to that organ from the poisoned part through the circulation, either by the medium of the veins, or of the absorbent vessels; that it should be conveyed into the blood, either indirectly through the absorbents, or directly by entering the veins of the poisoned surface. In the latter case, the poison is said to influence the brain by the medium of venous absorption. This view of the subject is advocated by a large number of physiologists, and is supposed to be confirmed by the results of certain experiments, to which we shall advert presently, as well as by the detection of some poisonous substances in the blood, or the more intense vitiation of that fluid, in a great number of cases of diseases, through the agency of such substances on the system. But although very generally received, this explanation is not viewed as satisfactory by every physiologist, and there are not wanting those who, rejecting the idea of a necessary passage of the poisonous agent along with the blood, to the brain, support the theory of nervous communication between the part which has received the first impression of the poison, and the cerebral organ, and assert that the constitutional disturbance arising from the application of a local agent, is adequately accounted for by the connexion or sympathy naturally existing between the extremities of the poisoned nerves and the sensorium.

This, as our authors remark, is one of the most important questions to which a physiologist can direct his attention; for it is not confined to the phenomena produced by the action of poisons, but “involves a theory which has reference to every morbid action that takes place in a living animal, from the operation of local irritation upon the functions of the brain and nervous system.” That this is the case, they argue from the circumstance, that—

“Whether constitutional disturbance shall be produced by the imperceptible operation of noxious miasmata, or whether it shall arise from a visible and local cause, as in the inoculation of small-pox, syphilis, or hydrophobia, still we find no distinct line of demarcation separating the essential characters of what is strictly called a poison, from those produced by more general and more ordinary causes of disease.”

This parallel is founded on the circumstance, that no distinction can be established, which has reference to the periods elapsing between the application of a poison, or of an ~~ordinary cause of disease~~, and the appearance of the effects produced by the brain, as we find

in both an endless variety in this respect; and that there exists a perfect similarity between the sensible consequences of poisons and those of other morbid agents. Our authors consider, that all fair analogy forbids the conclusion, that a poison, or an ordinary cause of disease shall, at one time, produce constitutional disturbance through the medium of one system of organs, and at another time through the medium of different systems; that under certain circumstances a poison, or any other cause of disease, shall affect the functions of the brain and nervous system at one time through the medium of the nerves, at another time by the circulation, and at another by the action of the absorbent vessels.

"It is contrary to all fair analogy, they say, to suppose, that any variety observed in the effect of a local agent, can essentially depend upon the medium by which it is carried into the system."

So far from feeling disposed to adhere to such a view, our authors very correctly believe that every organ in the living system is destined to perform its proper functions; that as far as our physiological researches have yet extended, we are justified in assuming, that no two organs in the human body are capable of performing the same function, and that two functions cannot be performed by the same organ.

In reference to the subject in question, they maintain, for instance, that the sympathy between the brain and stomach cannot be said to be conveyed along the eighth pair of nerves at one time, and by the circulating system at another: that when vomiting occurs as a consequence of concussion of the brain, it is occasioned by nervous sympathy; and that when morbid sensibility of the brain is produced by derangement in the digestive organs, that morbid sympathy is the result of absorption; and they deny that there are two roads between these two organs, by which sympathy is established; the one leading from the head to the stomach, and the other from the stomach to the head.

"Since then," they say, "the various phenomena resulting from the effects of poisons upon the system are too intimately connected with those produced by other causes of morbid excitement, to admit of any distinct line of separation; since we are led by analogy to believe, that the medium by which an impression is made upon the brain and nervous system, is the same in both cases, it must be manifest that the question, which has arisen amongst physiologists in every age, respecting the medium through which poisons influence the general system, is one that has reference also to the mode in which all morbid phenomena are produced in the living system; and therefore it involves a theory of the highest importance to the physiologist, to the physician, and to the surgeon; a theory, indeed, intimately and inseparably connected with every branch of science which has for its object the elucidation of those phenomena produced by local agents of every description upon the living body."

Messrs. Addison and Morgan next examine and criticise the opinions of former writers in relation to the medium through which poisons produce their effects upon the body; premising, 1, that although much valuable information respecting the morbid appearances which indicate the effects of different poisons may be found in the works of FONTANA and others; as well as in the later productions of ORFILA; yet these writers have left the question of the medium of communication as they found it, involved in doubt and obscurity; and, 2, that modern physiologists have endeavoured to establish the theory which would associate the operation of almost every poison with the process of venous absorption, while, however, they admit, that some of these poisonous agents destroy life so instantaneously, that they must be supposed to operate immediately upon the nerves. They commence with the experiments of Mr. BRODIE, the results of which, that distinguished physiologist and surgeon has recorded in the Philosophical Transactions of London. The effects obtained in these experiments by the essential oil of bitter almonds applied upon the tongue, or injected into the rectum of cats, were, as some of our readers doubtless know already, referred by Mr. Brodie to the action of this substance upon the brain, through the medium of the nerves. Without pronouncing for the present, on the correctness of this theory, our authors protest against the train of reasoning by which it has, in this instance, been supported; for it is assumed by Mr. Brodie, that the susceptibility of any part of the human body to a morbid impression may be correctly estimated by a dissection of its nerves, and that in proportion to the greater size and number of these will be the rapidity with which such morbid impression is conveyed to the brain. They also dispute the assumption, that the extreme irritability of the nerves of the tongue under one proper cause of excitement, is to be considered as a proof of their increased excitability to action under the impression of a morbid agent; both of which suppositions would involve a theory respecting the multiplied functions of a single nerve, which is not only unsupported by analogical reasoning, but is in many instances directly contradicted by fact.

“By the functions of a nerve we of course mean the functions performed by its *extreme branches*, as unconnected with the effect produced upon the brain by a local stimulus applied to its main trunk; for it is well known, that the *trunk* of a nerve may, under the action of very different stimuli, convey a similar impression to the brain, the effect of which is recognised under the general term of *sensation*, whilst its *extreme terminations* only receive and convey to the sensorium those peculiar impressions, for the production of which the organ was first called into existence; and, as it is proved that the same stimulus applied to the extremities of a nerve, which is highly susceptible of its influence,

and which consequently produces an immediate and powerful effect upon the system, may be applied without producing any sensible effect upon the extreme branches of another nerve, which, from the operation of a different exciting cause, may evince an equal degree of excitability; as, in short, it has been shown that the functions of a nerve cannot be determined by its comparative sensibility, we are at a loss to conjecture what has induced Mr. Brodie to support an opinion, in which he is neither borne out by fair reasoning nor by sound analogy."

To establish the correctness of their opinion, our authors resorted to the following experiment. The spinal marrow of a half-grown rabbit was divided, and the leg inoculated with Prussic acid. The animal died in three minutes after the introduction of the poison,—this being the usual period of time in which that poison was found to operate upon these animals under common circumstances, when introduced into the same part. Now, they remark, if the impression produced upon the brain by the application of Prussic acid to a distant part be the consequence of its action on nerves of sensation and voluntary motion, as Mr. Brodie supposes to be the case, it would be difficult to explain the result of the above experiment. At the same time they affirm, that the theory of venous absorption cannot any better account for the instantaneous operation of the poison in the same example.

Passing next to the effects produced by the application of poisons to wounded surfaces, and to the manner in which, under such circumstances, these substances act upon the brain, our authors remark, that having found, in some experiments with ticunas, that the latter produced its effects in the usual time, even when the thoracic duct had been tied, or the axillary plexus divided, Mr. Brodie concluded, that it had acted upon the brain by entering the circulation through the divided vessels. Mr. Brodie endeavoured to support this view by the following experiment. A tape half an inch wide was tied round the thigh of a rabbit, excluding the sciatic nerve, and although the leg was wounded and poisoned with ticunas, yet no sensible effect was produced at the end of an hour from the operation. After this interval of time had elapsed, the ligature was removed, and in twenty minutes the animal was found motionless and insensible. Mr. Brodie further considers, that the poison does not produce its effects until it enters the substance of the brain, along with the blood in which it is dissolved; and from analogy infers, that other poisons may affect the system in a similar manner. In drawing this conclusion Mr. Brodie again assumes, that the nerves of sensation and volition are the organs by which, in case of nervous communication, a morbid impression is carried into the system; a theory which, had he

renewed his experiment, he would have been at once convinced was, according to his own hypothesis, founded in error; for if, instead of applying the poison of woorara to a limb, around which (excluding the principal nerve,) a tight ligature had been applied; if instead of using that poison he had applied Prussic acid, he would, according to our authors, have met with nearly the same result as was obtained by them on a repetition of the experiment. They conclude that Mr. Brodie's opinion respecting the mode of action of Prussic acid might be opposed to his views relative to the operation of the other substance; since the same argument by which the theory of venous absorption is supported in reference to the poison of woorara, holds equally good in this case as applied to the poison of Prussic acid.

Messrs. Addison and Morgan are of opinion that the kind of venous absorption for which Mr. Brodie has contended—an absorption into the venous circulation through the mouth of a divided vessel, is extremely problematical, if not physically impossible.

“When a vein is divided, it is well known, that unless some branch be interposed between the truncated extremity and the next valve in its course towards the heart, unless the current of blood be driven through the cut extremity of the tube by collateral branches, we find that the sides of the vessel as far as the next valvular interruption will collapse and remain inactive; supposing the poison, then, to enter this flaccid tube, it is completely prevented from mixing with the circulating blood which fills the vessel above the valve by the pressure made by that circulating blood upon the opposite side of the valve, and consequently, under such circumstances, unless it can be proved that a poison has the property of propelling itself, it requires no argument to prove that the substance, instead of passing into the circulation, will remain stationary in that part of the vessel through which no circulation is carried on. If, on the other hand, circulation be carried on by collateral branches through that part of the tube which lies between the nearest valve and the mouth of the divided vein, the effect will be still more unfavourable to Mr. Brodie's hypothesis; for the circulation in that part of the vessel will be revived, and consequently, instead of being carried towards the heart, the poison will be washed out of the wound; in either case, therefore, it seems highly improbable that the poison can pass through the circulation to the brain by the medium of a divided vein. We do not dispute that foreign substances may be taken into the system by means of absorption; but we very much question the possibility of that absorption taking place, as Mr. Brodie has supposed it does, through the truncated extremity of a divided vessel.”

In reference to the opinion and experiments of Mr. Magendie on the subject in question, our authors remark that if his theory had related solely to the possibility of a poison entering the circulation, and producing, in that way, an impression upon ~~the brain and nervous~~ system, no possible objection could have been offered to the proof

which his experiments would have furnished; but that when they find, that the object of these experiments, relative to operation of poisons, has been to establish the fact, that the admixture of *all poisons* with the blood, which circulates through the veins of the poisoned part, is *absolutely* necessary to their operation, they feel called upon to urge, in the strongest possible manner, their objections both to the theory and to the slender foundation upon which it has been supported. They accordingly examine and comment upon almost every point of the experiments of the French physiologists—experiments which must be familiar to most of our readers. They contend, that the preliminary step of the operation—the administering of opium to diminish the sufferings of the animal was calculated to render all further investigations upon the body of the latter altogether nugatory; because when a sufficient quantity of opium is administered to produce the effect in question, this effect must interfere so materially with the action of any other specific agent, as to render it almost impossible, in many cases, to determine, by external evidence, whether, in the event of a fatal termination, the animal has been destroyed by the opium or by the other poison, or by the combined action of the two. In regard to the remaining steps of the operation they contend that the blood which circulated from the poisoned limb, through the femoral vein, must have brought the poison, with which it was mixed, into contact with the inner coats of the veins of the body, and that consequently, a highly irritable and widely extended surface of membrane was exposed to the action of that poison long before it could have reached the brain. They further object to M. M.'s theory on the ground that when a ligature is applied around the femoral vein of any animal, and the lower extremity of that animal on the same side is inoculated with *Upas*, the poison will exert its ordinary influence upon the system, which ought not to be the case, were the poison really *carried* to the brain; since the quantity thus carried would be very small; and again, that had the poison been carried to that organ, the circulation in the limb and the effects of the poison must have been retarded, which, however, was not the case. These objections they add will not apply to the theory of nervous communication, for the following reasons:

“That, as the nerves of the interior coats of veins are supposed by the supporters of that theory to receive the first impression from poison which circulates through the cavity of the vessel, and as these nerves are proved by daily observation to possess a high degree of morbid susceptibility; as, moreover, it ~~has been proved by M. Magendie's experiments~~, according to his *own* showing, that the poison must necessarily pass through the largest veins in the body in its course through the circulation, it may reasonably be inferred, that any

difference in time, which ought, according to the other theory, to have occurred between inoculation and effect, is prevented by the unimpaired functions of those nerves which supply the inner coats of the veins above the amputated limb, as these nerves must, of course, convey, in the usual time, the impression which the circulating poison produces upon their extremities; and as the poison is manifestly brought through the severed limb to the trunk before it can possibly affect the system, it must still remain a point at issue, whether the brain itself, or the nerves of the veins, receive its first impression."

In reference to the conclusions which Dr. Barry has drawn from his experiments, our authors are of opinion, that the soft structures of the surface of the body, which are covered by an exhausted cupping-glass, must necessarily, from the pressure of the edges of that glass, be deprived, for a time, of all connexion, either nervous or vascular, with the surrounding parts; that the nerves must be partially or altogether paralyzed by compression of their trunks, and that, from the same cause, all circulation through the veins and arteries situated within the area of the glass must cease; that the rarefaction of the air within the glass being still further increased by means of a small pump attached to it, the fluids contained in the divided extremities of the vessels are forced into the vacuum, and with these fluids, of course, either a part or the whole of the poison which had been introduced; and that in such a condition of parts, it is manifest, that the compression on the one hand, and the removal of the poison from the wound on the other, will explain in a satisfactory manner the result of the experiment, as well to the advocate of nervous communication, as to the supporter of the theory of venous absorption.

From a survey of what precedes, as well as from the results of their own experiments; and after once more assuming that it is unphilosophical to admit a twofold mode of operation of poisons; and taking into consideration the effects of nervous irritation in producing disease under circumstances when the absorption of a morbid matter cannot be presumed to have occurred, our authors arrive at the conclusion—

"That all poisonous agents produce their specific effects upon the brain and general system through the sentient extremities of nerves, and through the sentient extremities of nerves only; and that when introduced into the current of the circulation in any way, their effects result from the impression made upon the sensible structure of the blood-vessels, and not from their direct application to the brain itself."

The experiments detailed by our authors were instituted for the purpose of showing the extreme susceptibility of the inner coat of a vein when exposed to the action of a poison; 2d, that the almost instantane-

neous effect of a poison when circulating through a blood-vessel is rather to be attributed to its operation upon the sensible structure of the vessel itself than to its conveyance by such means to the brain; and 3d, of ascertaining whether in all cases the poison circulates in the blood and acts in that way on the nervous system of the animal.

The first of these points was established by placing, by means of small tubes inserted within the cut extremities of one of the jugular veins of a dog, small portions of woorara—the vessel being previously secured by ligatures above and below the place of division; and by allowing the poison, at a given moment, to mix with the blood, and to enter with it the torrent of the circulation. In these cases the effect of the poison was obtained in forty-five seconds. In another case, in which the same agent was placed *above* a permanent ligature and inclosed in a cylinder of quill, the effect was obtained in one hundred and eight seconds.

“The poison which was used in these two cases has never been known in dogs to produce a sensible effect upon the system, in cases of its insertion into superficial wounds of the body, in less than six minutes, and respiration usually has ceased in from a quarter of an hour to twenty-five minutes.”

To establish the second point, the poison was introduced into the carotid artery of a fox-hound, and carried instantly into the brain. In the case of venous absorption and cerebral contact instant death of the animal ought to have been the result. But—

“It was found, that the time which elapsed between the removal of the temporary ligatures and the fatal effects of the poison upon the body, was nearly the same in this as in the former case of its introduction into the jugular vein, for the animal dropped in forty-five seconds, and ceased to respire in two minutes.”

In another case the femoral artery was selected as the seat of a similar operation. As the poison, in this experiment, was carried downwards, it could not possibly find access to the brain until it had passed through the ramifications of the lower extremities, the capillaries and veins, to the heart, lungs, &c. all of which required considerable time. Yet notwithstanding these circumstances, the animal dropped in convulsions in the short space of forty seconds—even more rapidly than in the case in which the poison was sent directly to the brain through the medium of the carotid. The results of these experiments, which our authors consider as completely opposed to the theory which would attribute the action of a poison upon the system ~~solely to its contact with the substance of the brain~~, are, they think, strengthened by other experiments they detail, in which the mere ap-

plication of a poisonous agent to the wounded substance of the cerebral organ was unattended by those immediate and fatal effects which might reasonably be expected by the advocates of the theory in question.

To settle the third point—whether poisons circulate with the blood through the brain, Messrs. Addison and Morgan resorted to the following experiment. Two dogs were held face to face—the carotids of each were cut, and the lower extremity of one artery was made to communicate, by means of a brass tube, with the upper extremity of the carotid of the other dog. By this arrangement the blood of one of these animals was forced to pass into the body of the other. Upon introducing the poison of *nux vomica* into the back of the animal from whose carotid the blood was passing into the vessel of the other, it was found, that although the usual violent effect was produced in the inoculated dog, and although that effect continued for the space of fourteen minutes, during which a free circulation was maintained between them in the manner already mentioned, yet not the slightest indications of the action of the poison upon the system of the other animal could be observed. In another experiment the jugular veins were substituted for the arteries. The animal contributing blood to the other was inoculated in the side of the face, and in the usual time exhibited the customary symptoms, which continued during seven minutes. But although the circulation was freely kept up through the artificially connected jugulars, the other dog never showed the slightest symptoms of being poisoned. Finally, by means of a double tube, the authors were enabled, in a subsequent experiment, to establish a complete double circulation between the carotids of a poisoned and of a sound dog. But in this experiment the results were similar to those obtained in the foregoing.

The authors terminate by stating that so far as they are competent to judge, they think they are borne out in the conclusion, that all poisons, and perhaps all agents influence the brain and general system through an impression made upon the sentient extremities of the nerves, and not by absorption and direct application to the brain; adding, that if the experiments detailed in this essay are not satisfactory to their readers, they at least indulge the hope, that what has been advanced may lead to the discovery of more satisfactory and more conclusive evidence than has yet been adduced on this truly important question; a question, indeed, of the deepest interest, not as a mere matter of curiosity, but as involving the elucidation of many of the most prominent, and at present, the most mysterious phenomena of a living body.

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- ART. XVII.** *Report on the Epidemic Cholera, as it has appeared in the Territories subject to the Presidency of Fort St. George. Drawn up by Order of the Government, under the Superintendence of the Medical Board.* By WILLIAM SCOTT, Surgeon and Secretary to the Board. Madras, 1824. pp. 292. Folio. With Appendix, &c.
- Du Choléra-Morbus de Pologne; Renseignements sur cette Maladie, recueillis par la Commission des Officiers de Santé Militaires envoyée a Varsovie,* par M. LE MARÉCHAL DUC DE DALMATIE, Ministre de la Guerre. Paris, 1832. pp. 176. 8vo.
- Cholera, as it has recently appeared in the towns of Newcastle and Gateshead; including Cases, illustrative of its Physiology and Pathology, with a view to the Establishment of Sound Principles of Practice.* By T. M. GREENHOW, of (Newcastle upon Tyne.) London, 1832. pp. 162. 8vo.
- Practical Observations on Cholera Asphyxia, communicated in a Report to the Greenoch Board of Health, as the result of a Mission to the Infected Districts. With an appendix.* By JAMES B. KIRK, M. D. Greenoch, 1832.
- Etude du Choléra-Morbus en Angleterre et en Ecosse pendant les mois de Janvier et Fevrier, 1832.* Par le Professeur J. DELPECH. Paris, 1832. pp. 283. 8vo.
- Traité Pratique, Theorique et Statistique du Choléra-Morbus de Paris, appuyé sur un Grand Nombre d'Observations recueillies a l'Hopital de la Pitié.* Par J. BOUILLAUD, Médecin de cet Hôpital pendant l'Épidémie, Professeur de Clinique Médicale a la Faculté de Médecine de Paris, Membre de l'Académie Royale de Médecine, &c. Paris, 1832. pp. 426. 8vo.
- Monographie du Choléra-Morbus Epidémique de Paris, Rédigée spécialement sur les Observations Cliniques de l'Auteur a l'Hôtel-Dieu de Paris.* Par A. N. GENDRIN, D. M. Membres des Sociétés de Paris, Lyon, Louvain et Philadelphie; Médecin de l'Hôpital Cochin; Chargé pendant l'Épidémie d'un des Services de l'Hôtel-Dieu de Paris. Paris, 1832. pp. 336. 8vo.

THE pestilence whose progress we have been so long watching at a distance, has not only reached, but has actually already traversed no inconsiderable portion of our continent, and its past history affords ample grounds for the apprehension, that it will not only pervade our whole hemisphere, but that even where it has already prevailed it will again recur—that it may take root in our soil, and for an indefinite period ~~annually sprout forth~~ with greater or less vigour.

The subject has consequently lost none of its interest, even to those who have already had to contend against the ravages of this scourge, whilst to those who are anticipating a visitation, it has become one of absorbing importance; we therefore feel it to be our duty to redeem, without further delay, our promise of entering upon the consideration of its symptoms, pathology and treatment. We have never, however, undertaken a task with greater reluctance, and if personal considerations were permitted to influence us, we would postpone its performance until time should be allowed to digest more satisfactorily the large mass of materials before us. But during this delay, the ravages of the disease over our whole country might be accomplished, and as our gleanings, imperfect as they are, may perhaps prove useful to the profession, we do not feel ourselves justified in withholding them.

Malignant cholera is far from presenting any uniformity in the mode of its attack; on the contrary great diversity is observed in its symptoms. In most instances, its onset is violent and sudden, but usually preceded by certain premonitory symptoms, as furred tongue, diarrhœa, and general failure of the digestive powers, with pain or weight at the scrobiculus cordis, or some part of the abdomen, and frequently head-ache, tinnitus aurium, &c. Sometimes there is increased vascular action, giving to the patient a feeling of unusual good health, and a greater excitement of animal spirits than is usual to him; much more frequently, the patient feels languid, weary and oppressed, with a general feeling of undefined indisposition.* This state often continues for several hours or even days without being followed by the more characteristic features of the disease, or may even cease, the disorder proceeding no further. Usually after these slight symptoms, and often some hours after a meal, or more frequently still at night, the patient is attacked with a sensation of violent oppression, of cardialgia, frequent nausea, almost constant and colliquative diarrhœa, with fluid discharges resembling rice water; vomiting soon comes on, and after the common contents of the stomach, a clear watery fluid, interspersed with flocculi is discharged, and a feeling of exhaustion, sinking and emptiness is experienced. The powers of locomotion are speedily arrested; spasms affecting occasionally and by turns the whole of the muscles of voluntary motion, but particularly those of the legs, feet and hands come on; the pulse becomes small, weak, and accelerated; respiration laboured; tongue broad, pale and moist, &c.

* Greenhow, p. 5.

This condition of things soon ushers in another still worse. There is now a distressing sense of pain and burning heat in the epigastrium, with urgent thirst and desire for cold drinks; the blood forsakes the surface; the skin becomes cold, covered with a clammy, colliquative moisture, corrugated on the fingers and toes, and inelastic; the lips are livid or blue, and the limbs and parts of the body assume the same colour; the pulse gradually decreases until it is no longer to be felt at the extremities, and finally even the action of the heart is scarcely perceptible on the application of the ear to the chest; the respiration is oppressed and slow; the breath cold; the voice feeble and altered; the eyes are sunken and surrounded by a livid circle, the features contracted and the face exhibits a peculiar cadaverous aspect; the tongue becomes cold, and for the most part white with pink at the edges; bile and urine are no longer secreted; at this period the vomiting, purging and spasms generally abate, and sometimes entirely cease. The sensorial powers do not participate in this wreck of the organic functions. The patient is often drowsy, but answers distinctly and accurately all questions put to him. In some cases his sense of feeling appears acute, causing him to complain greatly of the heat applied to restore warmth to his surface; in other instances, however, the skin is not sensible even to the action of chemical agents. It often happens that the patient dies at this stage, without convulsions, or any apparent pain, and more frequently without the knowledge of those who surround him, so insensible is the transition from life to death, and so strongly does the living patient resemble the corpse.*

When a fatal result is averted, either by the efforts of art or the recuperative powers of nature, the skin becomes gradually dry and warm; the pulse is developed, the tongue slightly red, the respiration freer, &c. Should the reaction be moderate and sustained, the patient may now recover; but if on the contrary it is violent, the skin becomes hot, the eyes injected, tongue dry and encrusted, coma ensues, and death closes the scene.

If this brief outline of the disease be accurately drawn, it would appear that we may trace in its progress five stages; viz.—1st, the initiatory stage; 2d, the onset of the disease; 3d, the stage of collapse; 4th, the period of reaction, and 5th, the adynamic or typhoid stage.

It must not be, however, supposed that these stages are to be recognised in every individual case. On the contrary, the disease sometimes runs through the first and second stages, with such rapidity;

that they cannot be distinguished, and the patient appears at once to fall into collapse. These are the most fatal cases. There is sometimes in such cases but little apparent commotion in the system; no vomiting; hardly any purging, perhaps only one or two loose stools; no perceptible spasm; no pain of any kind; a mortal coldness with arrest of the circulation comes on, from the beginning, and the patient dies without a struggle. Several instances were heard of at Hobby, and other places in India, of natives being attacked with the disease whilst walking in the open air; and having fallen down, retched a little, and complained of vertigo, blindness, and deafness, they expired in a few minutes.* Similar cases were reported to the Medical Board of Bombay by Mr. GORDON.† A woman, walking on the Boulevard, in Paris, in the neighbourhood of Neckar Hospital, was seized with cramps, fell, and before she could be placed on a litter was dead.‡

Considerable differences have also been observed in the symptoms in different persons and at different epidemic visitations. Thus at one period it has been distinguished by the absence of vomiting, and the prevalence of purging; on another, by the excess of vomiting, and though more rarely, by the absence of purging. Spasm has been generally present in one instance of invasion, and in another not distinguishable.§

In Paris it was observed, that in children, females, and very irritable persons, nervous symptoms predominated; the cramps were attended with true convulsions; symptoms were even observed which simulated tetanus, during the paroxysms of which the patient expired. In plethoric subjects, with large and robust bodies, the inflammatory form of the disease manifested itself more frequently, the tongue was red and irritated, the epigastrium was the seat of acute pain, there was violent fever, very copious vomiting, insatiable thirst, and other symptoms demanding evidently an antiphlogistic treatment. In other instances the asphyxial type predominated—the blueness of the skin occurred from nearly the commencement of the attack, and the death of the patient took place often very promptly.||

Having thus attempted to point out the ordinary succession of the phenomena of cholera, and the more usual varieties in its feature, we proceed to the more particular consideration of the symptoms.

The *premonitory symptoms*, as they have been termed, upon which

* Orton, p. 8.

† See Report, p. 82.

‡ The Cholera Spasmodica as observed in Paris in 1831, &c. By Ashbel Smith, M. D. of North Carolina.

§ Madras Report.

|| Archives Générales, April, 1823.

so much stress has been recently laid, were not overlooked by the practitioners of India, though many of them appear to have viewed these symptoms as having no other connexion with the epidemic than as predisposing to its attacks. Thus Mr. SCOTT remarks—

*“This most formidable disease does not appear to be attended with any premonitory symptoms which can be regarded as being at all peculiar to it; on the contrary, we may safely assert, that it is of sudden invasion: for though a slight nausea, a laxity of the bowels, and a general feeling of indisposition are often found to precede cholera, yet these symptoms are evidently common to many acute diseases; and they are especially frequent in this climate, without being followed by any graver ailment. When such symptoms are found to precede cholera, they might with more truth be regarded as indicating merely a certain deranged state of the alimentary organs, a condition of the body which certainly predisposes a person to an attack of cholera.”**

All the practitioners in India do not, however, agree with Mr. Scott in representing the disease as unattended with premonitory symptoms. Thus, Mr. ORTON represents the attack as usually sudden, “but in a great majority of instances, not without some premonitory symptoms.”

“It is frequently,” he adds, “preceded by a simple diarrhœa, continuing several days, and still more commonly by other slight affections, which are more characteristic of the disease. Most commonly, it is in the middle of the night, or early in the morning, that these ominous disturbances are first felt. An extraordinary depression of spirits and general uneasiness comes on, attended by tremor and sense of debility, giddiness, and head-ache, and occasionally ringing in the ears, are also felt, particularly on rising from the recumbent posture, or making any sudden movement. Pains, resembling those which attend the accession of fever, are sometimes felt in the limbs. The bowels are griped occasionally, and natural loose stools occur; nausea comes on. The circulation and the temperature of the body are variously disturbed, but most commonly the pulse is accelerated and weakened, and the skin is moist, and colder than usual to the hand of another. These symptoms, or some of them, not unfrequently continue many hours, or even a day or two, without proceeding much further, or exciting much attention.”

Mr. ANNESLEY says, that one of the first symptoms the patient is sensible of, is a burning sensation between the scrobiculus cordis and umbilicus, and that he has never seen a case of the epidemic wherein it did not exist.†

Drs. RUSSEL and BARRY, in their report from St. Petersburg, dated July 27th, 1831, state the disease to have been often preceded for one, two, or more days by ordinary diarrhœa. Mr. SEARLE, who

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* Madras Report.

† Sketches of the most prevalent diseases of India, &c. 2d edition, p. 34.

saw the disease both in India and Poland, says that his experience warrants him in saying, that the cholera is usually preceded by diarrhoea of some hours' or even days' duration, and that this symptom is often preceded by others of even longer continuance; such as a sense of malaise or lassitude, with oppression at the præcordia, and not unfrequently with constipation of the bowels.* M. S. PINEL, who also observed the disease in Poland, asserts, that its attack was very rarely instantaneous. Very frequently, not to say always, there had been, in persons who appeared to be suddenly attacked, precursory symptoms, but which had not been attended to; the most common were *pains in the epigastrium*, and along the spinal column, cramps in the calves of the legs, and sensations of shootings in the fingers and toes.†

Dr. RANG, of Orenburg, represents the disease in that city to have announced itself several days in advance, by nervous symptoms similar to those produced by the gas from charcoal, by vertigo, giddiness, restlessness, insomnia, paleness of the face, coldness of the chest, palpitations, *pains in the abdomen*, *disgust of food*, loss of appetite, constipation, &c.‡

Dr. KIRK asserts, that diarrhoea always precedes cholera, and he has adduced the testimonials of nearly forty practitioners of England and Scotland, in support of that declaration.

In Paris, it was remarked that most of the subjects attacked with cholera, had been affected for several days and sometimes even several weeks, with derangement of the digestive organs, so slight generally, however, as not to have attracted much attention. This derangement consisted in a diarrhoea, the origin and cause of which was for the most part unknown, which continued two or three days, ceased and again returned, without any other general phenomenon except a slight feeling of debility.§

M. GENDRIN's testimony is to the same purport, and we must be permitted to quote his remarks on this point.

"Epidemic cholera is always," he observes, "preceded by precursory symptoms. I have met with patients who declared that they had not experienced any derangement in the health previously to the sudden invasion of the characteristic symptoms; but these patients were, for the most part, men living in poverty, or constantly half drunk; they belonged to that class, which is so large in hospitals, who are accustomed to neglect the derangements of health which

* London Med. Gaz. Jan. 1832, p. 506.

† Gaz. Med. de Paris, Tom. III.

‡ Recherches Historiques et Critiques sur le Choléra Morbus. Par F. E. Fodéré, p. 165.

§ Gazette Médicale de Paris, Tom. III.

are not attended with great pain, or to that class whose faculties are so little developed, that they cannot give an account of the symptoms they experience, although they may be evident to the physician at the moment he questions them. I have never seen any person living in a tolerably regular manner, whose intellectual faculties were at all developed, or belonging to that class of persons who give a correct account of their feelings, who has not declared that he had experienced precursory symptoms. As a great number of patients have been under my observation, I do not hesitate to lay it down as a fact, which admits of but rare exceptions, that the cholera morbus is constantly announced by premonitory symptoms, (*prodromes*.) They present two forms; the diarrhoeal and vertiginous." p. 15.

In Canada and in the United States, most of the authorities concur in stating, that disorder of the digestive organs, and for the most part diarrhoea, preceded the explosion of the more violent choleric symptoms.

This so general precedence of the cholera in all countries, by derangement of the digestive functions, and more especially by diarrhoea, appears to us to indicate a more intimate relation between them than is admitted by the author of the Madras Report, and to show that this last is the effect of the epidemic influence, determinative of the first; and that it is in all instances either the initiatory stage of the pestilence, or a mild form of the same, easily aggravated into its most malignant shape by imprudence in diet, exposure, neglect, &c. In a disease so perfectly manageable in its early stages as cholera, and which has hitherto proved so utterly refractory to medical treatment in its subsequent progress, it is impossible to attach too much importance, or to insist too strongly upon this point. During the prevalence of the epidemic, every symptom of disorder of the digestive apparatus should be viewed with suspicion, and it is the duty of the profession to impress upon their patients the importance, in all such cases, of applying early for advice.

Vomiting.—This is a prominent symptom in cholera, but there are numerous instances in which it is entirely absent. According to Mr. Scott, in certain epidemic visitations in India, there was scarcely an individual case in which it was manifested;* and M. Pinel asserts that in Poland it was absent in three-fifths of the cases.† In Paris, London, and in this country, this symptom has been observed to be pretty constantly present. In some cases the stomach seems to be freely and perfectly emptied; at others there is an ineffectual straining and painful effort to vomit, and a spouting up of any fluid which is swallowed, as if by an effort of the lower part of the œsophagus, rather than of the stomach itself. Vomiting

* Madras Report.

† Gaz. Med. de Paris, III. 102.

is sometimes altogether absent, or if it has been present, soon ceases, from an atonic state of the stomach, under which this organ receives and retains whatever may be poured into it, as if it were really a dead substance. This is a most alarming state, but it must not be confounded with the same condition arising from the absence of irritation of the stomach.

The matters expelled by the mouth are ordinarily at first the usual contents of the stomach, afterwards it consists of a whitish, sero-mucous liquid, more or less transparent, sometimes inodorous, and mixed with albuminous flocculi. In some instances this fluid is of a yellowish, at others of a greenish tinge, probably owing to the admixture of bile, though Mr. Scott thinks it is too readily admitted that these colours are owing to this course.

"Supposing, however," he remarks, "that either the yellow or green hue of the matter vomited in cholera, indicates the presence of bile, it is undoubtedly of rare occurrence, especially during the acute stage of the disease. It would appear, nevertheless, that apparently bilious matters have been vomited, particularly at the beginning, and towards the favourable termination of the disease, and even in cases, which have ended fatally."

The quantity of fluid vomited is various, sometimes being prodigious, issuing from the mouth of the patient in an almost constant stream, at others the discharge is small.

Dr. CLANNY states, that a careful analysis of this discharge has given him the following results:—Water, 991; fibrine, 5; albumen, 1; carbonate of soda, 2; animal extractive, 1.*

Purging is a more constant symptom of cholera than vomiting, and usually precedes it. This symptom is rarely altogether absent, though it unquestionably is so occasionally, and when this is the case it appears to denote a peculiar malignancy in the attack. In cases, where little or no purging has taken place during life, the intestines, have not been found, after death, to be filled with rice water, like matter, as if they had wanted energy to throw it off, or, as if a stricture had been formed on the lower portions of the gut. The dejections are sometimes made without effort or uneasiness; at others, they are thrown out with great force, which has been compared to the squirt of a syringe. There is seldom much griping or tenesmus, although the calls are very sudden, and are irresistible. In advanced stages of the disease, purging generally ceases; but in many cases a flow of watery fluid from the rectum takes place on any change of position.† The matters evacuated, after the first emptying of the bowels, are most usually a clear, watery fluid, with white flocculi, resembling

* Hyperanthrax, or the Cholera of Sunderland. By Reid Clanny, M.D. p. 112.

† Madras Report.

rice water; Mr. Scott describes its most common appearance to be that of pure serum, so thin and colourless, as not to leave a stain on the patient's linen. Sometimes the matters evacuated, are greenish or yellowish, from a tinge of bile, or turbid, of a frothy appearance like yeast, or rose-coloured from a small quantity of blood; occasionally of a deep chocolate colour, and not unfrequently bloody. Mr. OGILVY reports several cases in which "the evacuations were almost wholly composed of pure blood."* The reappearance of fecal matter, especially if tinged with bile, Mr. Scott says, seldom, perhaps never, takes place till the disease has been subdued. In some cases, the dejections are inodorous, in others they have a very peculiar smell.

The quantity of the discharge is sometimes exceedingly great, and were it uniform, as Mr. Scott remarks—

"It might afford us an easy solution of the debility, thirst, thickness of the blood, and other symptoms: but it is unquestionable, that the most fatal and rapid cases are by no means those, which are distinguished by excessive discharges. We have innumerable instances, on the contrary, of death ensuing after one or two watery stools, without the development of any other symptom affecting the natural functions. Even collapse has come on, before any evacuation by stool had taken place."†

The following results were obtained by Dr. Clanny on analysis of the dejected fluid:—Water, 989; fibrine, 6; carbonate of soda, 3; animal extractive, 2.

Spasm has been considered by many as an essential feature in this disease, so far, however, as relates to the muscles of voluntary motion, says Mr. Scott, no symptom is more frequently wanting.

"Spasms of the muscles," he adds, "chiefly accompany those cases, in which there is a sensible and violent commotion in the system. Hence they are more frequently found in European than in native patients; and in the robust of either, than in the weakly. In the low, and most dangerous, form of cholera, whether in European or native cases, spasm is generally wanting, or is present in a very slight degree. The muscles most commonly affected are those of the toes and feet, and calves of the leg; next to them, the corresponding muscles of the superior extremities; then those of the thighs and arms; and, lastly, those of the trunk, producing various distressing sensations to the patient. Amongst these, hiccup is not unfrequent, but it has been observed that this symptom, in cholera, is not at all indicative of danger. The muscles of the eye-balls have not been observed to be affected with spasm, unless the sinking of these organs in their orbits may be considered to be an effect of it. The reports make frequent mention of a remarkable, permanent contraction of the muscles of the abdomen, by which the belly is drawn towards the spine. The spasms attending cholera are of a mixed nature, not strictly clonic; the relaxations being less prompt and frequent than in epilepsy or convulsion; and seldom durable as in tetanus." The

contractions of the muscles are invariably attended with pain, and some Medical Officers have observed, that a degree of spasmodic stiffness had continued for several days afterwards. It has also been remarked, that spasmodic twitchings of the muscles have taken place after death, and have continued for a considerable time. In one case, where a man had been paralytic in his limbs, with a total numbness of them, they were severely affected with spasms, and became exquisitely sensible. It is pretty evident, that there either has been an inaccuracy in the description of spasm occurring in cases of cholera, or a sensation differing from that of spasm has been confounded with it; for, by the descriptions, we would be led to suppose that the spasms begin, and are felt, in the toes and fingers, which cannot be the case. As the extreme muscles however are generally first seized with spasm, it is probable that the small fleshy bundles in the palms of the hands, and soles of the feet are affected; but there seems reason further to conclude, that pain is really felt in the fingers and toes, and that it is referable to a sort of nervous twinge or *tic douloureux* in these parts, distinct from spasm, which is not uncommon in other disordered states of the digestive organs.”*

Trismus was observed in a considerable number of instances in India,† and it occurred in one case in the *Hôtel-Dieu* of Paris. The jaw has frequently continued locked several hours.

At Gateshead complete emprosthotonos was observed, the body being contracted into a kind of ball, which it is impossible to roll out after death;‡ and M. Foy describes opisthotonos to have been a very usual attendant on the disease in Poland.§

Several instances are recorded in which spasm of the muscles of deglutition were brought on by attempts to swallow.|| Cramp of the stomach is by no means a common symptom.¶ Spasms usually come on early in the disease, and often cease when the stage of collapse is fully formed.

The returns of the paroxysms of spasm are frequently brought on by the slightest exertion; and in particular they appear to be intimately connected, in regard to cause, with those of vomiting, these affections frequently recurring together.**

Hemiplegia has been noticed as a consequence of cholera in one or two instances.††

Collapse.—Sinking of the circulation is the most invariable symptom in cholera; nevertheless, where instant remedial measures have

* Madras Report.

† Orton, p. 31, 39.

‡ Observations on the Pestilential Cholera, &c. By William Ainsworth, Esq.

p. 58.

§ Du Cholera-morbus de Pologne ou recherches Anatomico-pathologiques, Therapeutiques et Hygieniques sur cette Epidémie. Par F. Foy, M. D. P. L'un de Médecins Envoyés en Pologne. p. 11.

|| Orton, p. 32.

¶ Ibid.

** Ibid. 2d edit. p. 3.

†† Ibid. p. 33.

been successfully practised, this symptom may not have developed itself. The period at which a marked diminution of vascular action takes place, is somewhat various.

"The pulse," says Mr. Scott, "sometimes keeps up tolerably for several hours, though very rarely. It more generally becomes small and accelerated at an early stage; and, on the accession of spasm or vomiting, suddenly ceases to be distinguishable in the extremities. The length of time, during which a patient will sometimes live in a pulseless state, is extraordinary. Dr. Kellett relates a case, where the pulse was gone within three hours from the attack; yet the man lived in that state, from the 3d of October, at 4 P. M., to the 6th, at 2 P. M. On the cessation of the spasms or vomiting, and sometimes, apparently, from the exhibition of remedies, the pulse will return to the extremities for a short time, and again it will cease. The superficial veins and arteries are not always collapsed, even when the pulse has ceased. If these vessels be opened in this condition, the contained blood flows out; their walls then collapse, and no more blood can be extracted. There is no authenticated fatal instance of cholera on record, where the circulation has not been arrested, in the extremities at least, long before death took place."

Thirst, and a sense of heat or burning in the epigastric region, often extending over the whole abdomen, form very prominent and constant symptoms; yet not only in individuals, but even in epidemic visitations, Mr. Scott says, that they have been altogether absent. When they are present in the highest degree, and, as Mr. JAMESON observes,† "all is burning within;" the mouth and tongue are generally moist, cold, and blanched. At times, however, according to Mr. Scott, the tongue is parched, dry and furred, but he does not inform us at what period of the disease. It was probably observed only in the last stage.

The thirst is often excessive, and even uncontrollable, and the patients usually desire cold drinks, notwithstanding the coldness of the body.

The *skin* in cholera is cold, generally clammy, and often covered with profuse cold sweats. The coldness generally commences in the nose, cheeks and extremities, and finally extends over the body. Sometimes the skin is dry though cold, and at others is said to be of natural warmth. Just before death an increase of temperature has been repeatedly observed to take place, in the trunk and head; and in almost all cases, this *partial* development of heat is found to be a fatal symptom. It is entirely unconnected with any restoration of the energy of the arterial system, or any improvement in the function of respiration. The heat, in such instances, has been observed to continue for some hours after death.

The sweat when thin, is usually poured out, in large quantity, from the whole surface of the body; but, when thick or clammy, it is more partial, and generally confined to the trunk and head. The perspiration is often free from odour; at times it has a foetid, sour or earthy smell, which has been said to be peculiarly disagreeable.

Frequently the skin is exceedingly sensible, the patient complaining even of burning when the hand is placed on the body; applications of moderate temperature cannot be supported, and vesicatories act well. When however the skin is much collapsed, Mr. Scott says that it becomes usually insensible, even to the action of chemical agents, and hence the usual vesicatories fail in producing any effect.

"The application of mineral acids, and of boiling water, in this condition of the skin, produces little or no effect, and some patients are said not to have been sensible of the operation."

When the state of collapse is at its height, and the whole surface has become cold, the body which at first was of a slightly plumbeous tint, afterwards becomes cupreous, and finally of a very deep blue.

Rigor is an occasional occurrence in the beginning, particularly of the milder cases.

Countenance.—The remarkable shrinking of the features, constituting the peculiar countenance characteristic of cholera, and which when once seen can never be forgotten, has been noticed by all writers. The eye is sunk back and firm in its socket, surrounded by a livid circle, but half-closed when the patient is dozing; the cornea is dull and glassy, or covered with a transparent film, the sclerótica often injected, even ecchymosed. The expression is sad, indicative of extreme suffering and complete prostration; it is truly the expression of death.

The *respiration* is usually much disturbed and laborious, and there is often the most distressing sensation of oppression and suffocation. In the early stages Mr. Scott says that it is not usually interrupted, but from a peculiarity in the mode of attack, under which spasm seizes the muscles subservient to that function, and that in many cases terminating in death, respiration has gone on in its mechanical part with little or no interruption, except that it becomes slower and slower, and in one instance was performed only seven times in a minute. Most writers, however, and among others Mr. Orton, represent the breathing as hurried and oppressed, and Mr. Scott remarks that in numerous instances it was most distressing, and could only be compared to the most violent attacks of asthma.

Orton, p. 35.

In many instances the breath is cold.

The air expired by those labouring under cholera contains much less than the usual quantity of carbonic acid, according to Dr. Davy only one-fourth or one-third;* and it would appear from the experiments of Dr. Clanny, Guéneau de Mussy,† and M. Barruel, that the amount is sometimes even less. The last named gentleman says that he has ascertained that during collapse no change was effected in the chemical composition of the air respired—it contained no carbonic acid, and not an atom of oxygen had been absorbed.‡

The voice is very peculiar, being husky, feeble, and sometimes inaudible; yet instances are not wanting, in which it has continued of natural strength almost to the last moment.

There is usually considerable *restlessness* in the early stages of the disease, the patient constantly tossing about and throwing his arms out of the bed, and this is said sometimes to continue throughout the disease. Not unfrequently from the commencement, and usually in the latter stages, the patient lies in the utmost tranquillity.

The *intellectual faculties* are described by some writers as continuing perfect, in this disease, often even till the last moment; it must not, however, be supposed that they retain their ordinary vigour, and remain wholly unaffected amidst the wreck of the other functions. The mind is usually dull, though there is no positive *aberration* of intellect; and the patient often exhibits a total indifference to his fate, which is far from natural.

"In a disease," observes Mr. Scott, "so highly congestive as cholera, where vertigo, deafness, and ringing in the ears, often prevail, and where very large quantities of opium and intoxicating matters have been swallowed, it is truly surprising, that the functions of the sensorium are so very rarely disturbed. It seems probable, that it is in many instances, from an inaccuracy of language, that coma has been represented as a symptom of cholera: for we find that patients, who have just been represented to be in a *comatose* state, can, with more or less facility, be roused from it; and, though he cannot overcome that retirement within himself, which constitutes so remarkable a feature of the *Y.* he will yet evince, by the clearness and precision of his answers, that lect is not destroyed."

Coma is, however, admitted by Mr. Scott occasionally to be present, and in Europe, where the patients have died in the adynamic state it was usually present. Delirium, according to Mr. Scott, has seldom or never been observed, unless as a sequela of cholera, when other and foreign morbid actions have been established; but Mr. Orton§ says, that it is not an unusual symptom. In Europe and in this country, it has not occurred except in the stage of reaction.

* Ed. Med. and Surg. Journal. † Gaz. Med. de Paris, T. III. p. 219, 278.

‡ Archives Générales, April, 1832, p. 605.

§ P. 33.

State of the blood.—All the writers on cholera concur in stating the blood to be of a dark colour and thick consistence, and it is perhaps one of the most constant characters in this disease.

“These appearances are very uniformly expressed by the terms, dark, black, tarry, in regard to colour; and by thick, ropy, syrupy, semi-coagulated, in respect to its consistence. The change in the condition of the blood is likewise fully proved to be in the ratio of the duration of the disease; the blood at the commencement seeming to be nearly, or altogether natural, and more or less rapidly assuming a morbid state as the disease advances. Some very rare cases are recorded, where, however, this morbid state of the blood was not observable, although the disease had been for some time established: and instances have occurred, where the blood flowed readily, sometimes little altered, where, nevertheless, death ultimately ensued. The abstraction of blood has been found by all practitioners to be very difficult and uncertain; and the uncertainty has been variously imputed to the feebleness of the circulation, to the thick consistence of the blood, and to the combined operation of these causes. The blood drawn from patients, suffering under cholera, is stated to be generally very destitute of serum, never to exhibit the appearance of buff, and to be generally disposed to coagulate quickly. Several instances, however, have occurred, where the coagulation was slow and imperfect. A great majority of the reports state unequivocally, that, after a certain quantity of dark and thick blood has been abstracted from a patient under cholera, it is usual for its colour to become lighter, its consistence to become less thick, and for the circulation to revive: such appearances always affording grounds for a proportionably favourable prognosis. In many instances, however, no such changes have been observed to accompany the operation of bleeding, while yet the result was favourable. The blood is generally found to be less changed in appearance, in those cases of cholera, which are ushered in with symptoms of excitement, than where the collapsed state of the system has occurred at an early period. The blood has been occasionally found, on dissection, to be of as dark a colour in the *left*, as in the *right* side of the heart: affording reason to believe, that in the whole arterial system it was equally changed. The temporal artery having been frequently opened, the blood was found to be dark and thick, like the venous blood: but it would appear, that this operation has not been performed in general, until the attempts to procure blood from the brachial or jugular veins had failed: little or no blood could be obtained, the artery merely emptying itself in a languid stream, not in a jet, and then collapsing. An instance is stated, where the surgeon, despairing of other means, cut down upon the brachial artery, but so completely had the circulation failed, that no blood flowed. When reaction has been established, the blood occasionally shows the buffy coat.”*

We refer to our last No. p. 513, for an analysis of this fluid.

The secretion of urine is very generally much diminished, or entirely suspended; those cases in which it is secreted, are said not to be less dangerous than those where it was entirely suppressed. We

have met with two instances in which the secretion of urine was excessive, amounting to almost complete diabetes. This form, so far as we know, has not been described, it might be termed the diabêtic. The fluid portions of the blood, instead of being discharged by the intestinal mucous membrane, pass off from the kidneys. In neither of the instances in which we have observed this form, was there complete collapse, but the debility caused by the discharge was very great—there was extreme lightness of the head, and giddiness, which was aggravated after each discharge of urine. There was also diarrhœa, but not the profuse serous evacuations from the bowels observed in other cases.

Reaction.—In India the cholera for the most part appears to have terminated in the cold stage either in death, or this stage was followed by prompt restoration to health. “In natives of this country,” says Mr. Scott, whose able report we have had so frequent occasion to quote, “in whom there is ordinarily very little tendency to inflammatory action, the recovery from cholera is generally so speedy and perfect, that it can only be compared to recovery from syncope, colic, and diseases of a similar nature.” It has also been observed in Europe that patients have recovered from collapse without the reaction transcending the normal standard, and hence some of the European practitioners, among others Dr. Ochel of St. Petersburg,[†] were led to believe, with the physicians of India, that this reaction was not a necessary stage, but a secondary disease.

This stage of reaction, however, was not always absent in India; it was observed in Bengal, and is described in the report of that presidency, as rising to a great height, assuming all the characters of the idiopathic bilious fevers of the country. Mr. Scott also admits that in Europeans, in whom there is a much greater tendency to inflammation, and to determinations to some of the viscera than in the natives of India, the recovery from cholera was by no means so sudden or so perfect as in the latter. On the contrary, he remarks, it too often involved affections of the intestines, of the brain, of the liver, and of the stomach. The brain and liver, according to Mr. Speñce, were the organs generally affected in India, in what he terms the sequelæ of cholera.

“In one case which I attended,” he observes, “the brain became inflamed to an exceedingly violent degree after a smart attack of cholera; the patient was bled largely, both from the arms and temporal artery, with other depletory measures, before the febrile excitement could be subdued, and though ulti-

mately he recovered his bodily health, he was an inmate for two years of the lunatic asylum. Another instance occurred where cholera was succeeded by fever of the pure typhoid character, which continued three weeks before the man became convalescent. One man was attacked with jaundice, attended with much fever, and after lingering many weeks, died a maniac.”*

Mr. Orton also speaks of phrenitis supervening on this disease, and it is well known that insanity supervened in the case of the celebrated Casimir Périer.

In Europe the stage of reëction was much more distinctly marked and attracted more particular attention. It, however, exhibited considerable diversity in different cases. In St. Petersburg most persons in this stage were affected with delirium, which soon changed into a state of coma, in which the greater number perished, leading many physicians to believe that the cholera was nothing but a species of nervous fever. In many others, neither delirium nor coma occurred, but abdominal inflammations, very often of the liver, sometimes of the parotids; in others more or less violent gastric, bilious, inflammatory fevers; finally, there were some cases in which a more or less slow convalescence immediately followed a first paroxysm which had always some resemblance to an apoplectic intermittent fever.†

In Poland the stage of reëction was very generally observed, but its nature appears not to have been well understood, and hence, most of the writers speak of the disease terminating in, or being complicated with, typhus fever, or being often followed by that disease. Both in Great Britain and France, the reëction was distinctly observed, and was considered as a stage of the disease. In some cases, to the coldness marking the collapse, violent reëction ensued, the pulse became full, and exceedingly developed, the skin hot and disposed to be moist, precisely as in the hot stage of intermittent fever. It is not very common, however, for the reëction to be so fully and perfectly developed. Most frequently, says the editor of the *Gazette Medicale de Paris*, reëction is not at first decidedly established; it is only after several successive alternations of cold and heat that the latter persists, but in a feeble degree; the pulse becomes but little developed, the skin is dry and moderately warm. Some local symptoms next appear, most frequently of disorder of the brain, and a general state of prostration or even of stupor, which rarely however reaches the degree observed in very violent and long-continued typhoid fevers; the patient retains his intellect, and answers questions perfectly. The tongue is slightly red, but is not generally so dry and horny as in the fevers

* Med. Gaz. IX. 342.

† P. 11.

‡ Ochel, Rev. Méd. Jan. 1832.

alluded to. Finally, the adynamic symptoms do not reach that degree of intensity which would be expected from the reaction which should follow such a marked degree of collapse as occurs; it may be said that the vital forces exhausted in collapse are no longer capable of an energetic contest in the second; in these subjects the pulse is moderately frequent and but little developed. In some others the local symptoms are more marked; there is delirium or a state of coma, which goes on increasing until death, if not arrested in time.

Medicine would be truly unworthy of the name of a science, as has been justly observed by M. Bouillaud, if it limited itself to a blind and frigid exposition of the symptoms of diseases: it must connect, compare, weigh, *appreciate* these symptoms; determine which of them plays the most important part; fix, if the expression be allowable, their hierarchy, their concatenation, series, relation, and coördination. Let us see how this can be accomplished in relation to cholera.

On examining the phenomena of that disease, two sets of symptoms particularly strike us; the abdominal pains, and the vomiting and purging of watery fluids—which M. B. very justly attributes to an eminently active secretory irritation of the gastro-intestinal mucous membrane—and the coldness and blueness of the extremities, disappearance of the pulse, extinction of voice, extreme prostration of the muscular forces, and the sudden diminution of the volume of the body, which he with equal propriety refers to a suspension of the vitality or organic actions in the exterior portions of the body. Now the question arises whether these two orders of phenomena appear simultaneously, or are developed one after the other; and if the latter be the case, which of the phenomena have the precedence.

“Now,” says M. B. “it is incontestable that the abdominal phenomena, the vomiting and purging, or one of them precede the exterior phenomena, as the coldness, the cessation of pulse, the blue or violet tint of the skin, as well as the suppression of the different secretions, and of that of the urine in particular. How little soever one may be acquainted with physiology, it would not be difficult to find the relation of cause and effect between the abdominal and other symptoms. In fact, who is ignorant of that physiological law by virtue of which the augmentation of one secretion produces a proportional diminution in others? And who does not see that conformably to that law, it is impossible that the enormous increase in the secretion from the interior of the digestive tube, should not be accompanied by the diminution or complete suspension of the secretion of urine and several other fluids? Let us add that these secretions cannot moreover, be formed but when the blood contains a sufficient quantity of serum or

water, a condition which does not exist, when the choleric evacuations, in great part composed of serum, have been excessively abundant.

“As to the other symptoms, as the coldness, blueness, weakness of the circulation, extinction of voice, we may explain them, at least to a certain extent, on reflecting that the choleric evacuations, suddenly and prodigiously diminishing the mass of humours, and of the blood in particular, must necessarily, as in profuse hæmorrhages, (in a less degree however,) greatly weaken, not only the sanguiferous system itself, but also all the functions dependent upon this system. The secretion of so enormous a quantity of fluid cannot moreover be effected without a considerable consumption of the nervous power, which naturally presides over these functions, and of which the ganglionic nervous system appears to be the depository. Is not this kind of deperdition of the ganglionic nervous power effected, in part, at the expense of the innervation which animates the circulatory organs? Be this hypothesis, to which I do not attach the least importance, correct or not, what is certain is, that the sanguineous mass, almost totally deprived of its aqueous or more fluid portion, then presents a thickening, a viscosity which constitutes a physical obstacle to the circulation. The mass of blood having been thus considerably diminished, and the viscosity of the liquid which remains, opposing a certain obstacle to the organic power which moves it, it is not at all astonishing, even not taking into account the weakening of the nervous power, that the pulse should be enfeebled, gradually sink and ultimately disappear in the arteries most remote from the circulatory centre. This suspension of the arterial circulation, joined to the immense deperdition of caloric produced by the choleric evacuations, explains in its turn the coldness and the livid or blue tint, of the parts thus deprived of arterial blood, that is, of the vivifying principle of all the organs, of the principal conductor of the heat which penetrates them.

“There is yet another element, which must not be entirely neglected in the solution of the problem under discussion. We have seen that either on account of the weakening of the mechanical powers of the circulation, or on account of the new properties of the blood deprived of much of its serous portion, or finally, in consequence of these two causes combined, the chemical phenomena of respiration are performed in only an imperfect manner. Now, there results from this obstacle to the oxygenation of the blood, a particular asphyxial condition which must exert an influence over the violet or livid colour of certain parts of choleric patients. Let us add that the intensity of this tint should be in proportion to the profuseness of the choleric evacuations, (I do not allude to those which are sanguinolent,) which deprive the blood of its aqueous element, leaving its colouring matter entire; for it is clear, that the latter being no longer diffused in a sufficient quantity of water, must necessarily appear deeper.”

Such is the physiological explanation of the symptoms offered by M. Bouillaud, and if it does not embrace all the phenomena, it may be made to do so by a slight extension, and it is the most satisfactory yet presented, fulfilling more of the capital conditions which we have a right to exact in all medical expositions. Perhaps too little account is taken of the nervous system, but it must be confessed that implicit confidence cannot be claimed for any explanations founded upon the functions of that apparatus, with the imperfect knowledge we have of

the subject. But may we not, to explain the spasms and neuralgic pains—the sudden death that sometimes occurs with but slight or at least without profuse evacuations, and the complete interruption of the relations and communication between the different apparatus by which the unity of the organism is destroyed, have recourse to a derangement of the ganglionic nervous system? It is the office of that apparatus to connect the various organs of the abdomen and thorax, and to place them in sympathetic relation; it is the chief agent in the maintenance of these organs in the performance of their functions, and the medium of communication between them and the cerebro-spinal nervous system.

Muscular contraction requires nervous stimulation for its accomplishment, and the production of convulsions by worms and indigestible matters in the alimentary canal, at once points out an irritative impression upon the ganglionic nervous system of the splanchnic apparatus, conveyed to the cerebro-spinal system, for an explanation of the spasms in cholera.

Extreme congestion of the secretory apparatus of the intestinal tube, and the consequent proportional deficiency in the other organs of the vital fluid—thus destroying the organic actions in the former by the overwhelming congestion, and arresting it in the latter by the debility caused by the abstraction from them of their nutritive element—may perhaps explain the sudden death which sometimes occurs without any profuse evacuations. But where life is sufficiently protracted in these cases, and always where complete collapse is established, we observe a phenomenon which seems to refer to the sympathetic nervous system for an explanation. We allude to the complete dismemberment of the different organs—the entire destruction of their connexion and sympathetic relations—so that the suffering organ is unable to relieve itself by radiating to some other, a portion of the irritation which is destroying it, and remedial impressions are no longer transmitted from one organ to another, medicines acting solely upon the part to which they are applied—constituting, as we shall hereafter see, the great obstacle in the treatment of the disease.

It being one of the functions of the ganglionic system to connect the various organs together, their disjunction manifestly indicates a suspension of that function; but it is equally certain that this lesion of the nervous apparatus is *secondary* to that of the digestive, for, as is correctly remarked by M. Gendrin, to give to the nervous symptoms of cholera the importance of primitive and dominant phenomena, would be contrary to all observation, which shows that the violence of the nervous symptoms bear no relation to the intensity of the disease.

We need not enter more fully into the physiological explanation of the phenomena of cholera at present, as we shall have to recur to it again, when considering the pathology of the disease. *

If all derangements of the normal actions were indicated by constant and unequivocal symptoms, and the degree and extent of morbid lesions could be determined by the violence of these symptoms—their physiological explanation would conduct us at once to a correct pathology. But as the symptoms furnish uncertain information of either the degree or kind of morbid actions, and moreover, as extensive and even fatal lesions frequently occur without any appreciable external manifestations, a pure physiological system of pathology becomes impossible, and we are compelled to resort to other sources to supply the necessary data for a complete pathology. These are furnished by an examination of the body after death—let us then see what information is furnished by the post mortem examination of cholera patients.

The lesions observed on examination of the body after death from cholera, are found to vary according to the stage of the disease at which the patient dies, and their extent to be also influenced by the duration of the attack. When the patient is carried off after only a few hours illness, little time has been afforded for appreciable disorganizations to be effected, and the morbid changes are of course less striking than in those cases in which the patient has survived for a longer period, but manifest morbid alterations are always met with. We shall endeavour to sum up as briefly as possible these lesions, and shall commence with those observed in persons who have died in the period of collapse.

Upon opening the abdomen, the peritoneum is found to be quite dry, and we may remark, that all the mucous membranes are in the same condition, and that little or no serum is found in their cavities. Externally the digestive tube is observed to be very much injected, and of a rose or violet tint. The different portions of this canal are also often more or less dilated by their liquid or gaseous contents. Sometimes we find a more or less considerable contraction either of the stomach or intestines. The intestinal parietes in some of their convolutions are commonly a little thickened, nearly as after general peritonitis, and may be said to be slightly infiltrated.* Intussusceptions are sometimes met with; M. Gendrin met with them in the ilium in three cases.

* Observers differ in their descriptions of the colour of the mucous

membrane of the digestive organs. M. Gendrin says that from the mouth to the anus it is generally of a livid tint, but admits that in a third of the cases evident traces of inflammation are met with;* whilst M. Bouillaud asserts that it is almost constantly red, with red points. and arterial and minute capillary injection.† The consistence of this membrane is not generally altered, but it is by no means uncommon to meet with it softened, thickened or thinned in places of greater or less extent.‡ Another very remarkable lesion of this membrane is its putrid or gangrenous disorganization. M. Bouillaud has met with this lesion once in the ileum, and six times in the large intestine; and Mr. Orton met with it in one case in the small intestines.§ M. Sandras states that there are often found in the lower part of the small intestines and in the large intestine, plates of a black-red colour, like ecchymoses, sometimes of so dark a tint that the German physicians considered them as more or less decided gangrene—these plates were from a few lines to several feet in extent.||

The mucous membrane of the stomach over its whole circumference presents a multitude of small, white granulations, slightly grayish, presenting a very regular hemispherical projection. These granulations have no regular arrangement, and every where disseminated; they are still more numerous in the duodenum and jejunum than in the stomach. M. Serres says that they are so numerous and developed in the small intestines that the whole mucous membrane seems as if made up by them;¶ their number decreases towards the large intestines. On dissection these granulations are found to be the follicles of Brunner distended by a white, turbid fluid, and three times their natural size. This development of the follicles of the mucous membrane appears to be almost, if not constantly, met with, even when death occurs within twenty-four hours.

“The isolated follicles, or the glands of Brunner,” says M. Bouillaud, “are those particularly which we observe more or less tumefied and developed, nevertheless it is not uncommon to meet at the same time that lesion in the plates of Peyer or the clustered follicles. This hypertrophy, this species of erection of the follicles of the mucous membrane of the digestive tube prevails sometimes through the whole extent of this immense membrane; and thus gastro-intestinal eruption, sometimes distinct, at others confluent, imitates to a certain extent the variolous eruption in its first stage. The number of follicles developed, when the eruption is confluent, is truly incalculable. We will only say, that any one who has seen this kind of eruption, will not consider the calculation of M. Lélut, by which the whole number of follicles in the alimentary mucous membrane is estimated at forty-two thousand, to be exaggerated. The

* P. 94. † P. 254. ‡ Bouillaud, p. 255. § P. 34. || P. 37, 38
¶ *Gaz. Med. de Paris*, Tom. III. p. 206.

size of these follicles thus tumefied varies from that of a small millet-seed to that of a hemp-seed. Their form is rounded and granular. Many of them have a blackish point at their centre. There are some which do not offer this character, and MM. Serres and Nonat, who have published some researches of great interest on the subject under consideration, think, as is known, that these granulations are not follicles, but *intestinal papillæ* in a state of tumefaction. We have studied with some care this point of pathological anatomy; and we are certain that an immense majority of the granulations with which the mucous membrane is covered, are really enlarged follicles, but we will not affirm that those on the summit of which there is no perceptible black point, and which marks the opening of follicles, are actually the same. The colour of follicular granulations is commonly a grayish-white; at their basis a more or less considerable injection is frequently met with." pp. 256, 257.

Incipient ulcerations are also occasionally met with in the intestinal follicles.

The whole intestinal tube is generally more or less distended with a whitish, turbid fluid similar to that discharged by vomiting and stool, and which fluid is in some degree pathognomonic of cholera. That fluid is to the disease, what the effusion into the pleura is to pleurisy, that into the peritoneum to peritonitis, &c. In the stomach, besides the choleric fluid there is found, usually a very considerable quantity of glairy mucus, more or less adherent to the mucous membrane; sometimes in place of this a layer of creamy matter is found, similar to that hereafter to be noticed as met with in the intestines. M. Bouillaud says that he has several times seen in the stomach a yellowish or greenish bile.

In the small intestines, two different kinds of liquid are contained, one the choleric fluid, the other a fluid, sometimes of a dark reddish colour, at others rosaceous, more frequently of the colour of chocolate or of lees of claret, the tint depending upon the greater or less proportion of blood which concurs to the formation of this liquid. It has more or less density, and is less abundant than the choleric fluid. It is not unusual to find both these fluids in the small intestines, in which case the whitish commonly occupies the upper convolutions, whilst the lower are filled with the reddish or sanguinolent fluid. When the intestine is emptied of these fluids, there remains upon the surface of the mucous membrane a layer of whitish, or grayish-white or sometimes yellowish, creamy matter, it is easily removed by a stream of water. Gas, lumbrici, and a greater or less quantity of yellowish or greenish bile are also met with.

The large intestines contain also the two fluids found in the small ones; these fluids are, however, thicker and more turbid than in the former.

M. Bouillaud says that both these fluids are sometimes found in the

large intestines of persons in whose small intestines there is only the whitish liquid, but that the reverse does not occur, and that whenever the small intestines contain a reddish fluid, we are almost certain to find the same in the large intestines. The layer of creamy matter is thinner in the large than in the small intestine. In some cases a fluid resembling puriform mucus was met with. Gas and lumbrici are more frequently found in the large than in the small intestines, but bile is scarcely ever seen in the former.

The *liver, spleen, pancreas, mesenteric ganglions, kidneys and bladder*, present no lesion, except where the disease is complicated with some other; these organs are, however, more injected, and rather of a more violet hue than in their normal state. The gall-bladder is filled, and often distended with a viscid bile differing little from that usually found in it. The liver is generally injected with blackish, tolerably fluid blood; it is not, however, augmented in size. The ramifications of the vena porta are gorged with black, viscid blood.

The *spleen* is usually small and not congested.

The *kidneys* are most commonly injected with black blood, but unaltered in their tissue; the pelvis and ureters are empty; we remark only on their parietes a creamy, viscid matter, which also flows from their tubuli uriniferi on pressure.

The *urinary bladder* is almost constantly empty, and firmly contracted under the pubis. Its mucous membrane is covered with the same creamy matter found in the intestines and kidneys.

The *heart, arteries and veins*, except in cases of complication, offer no notable lesion of structure. The arteries are nearly empty; in the larger ones, and in places only, a dark, viscid, imperfectly coagulated blood, precisely similar to that found in the veins, is met with. The whole venous system is gorged with blackish, viscid, semi-coagulated blood, forming nevertheless in some cases a clot of sufficient consistence to be drawn from the vein like a cord. This engorgement is the more marked the nearer the vessels are to the heart; it is especially considerable in the superior vena cava, the subclavians, the internal jugular, and the vena azigos. The heart, especially its right cavities, are generally gorged with blood similar to that found in the veins. Its proper veins are exceedingly distended with the same kind of blood.

The *lungs* are often flaccid and collapsed, frequently emphysematous, sometimes engorged in the posterior portion of their tissue; in these last cases M. Gendrin says that the bronchial mucous mem-

brane is of a deep livid red.* In one case M. Bouillaud found on its surface a creamy layer analogous to that which covers the intestinal and vesical mucous membrane.

The *cerebro-spinal nervous system*, except in cases of complication, presents little or no appreciable lesion. The membranes of the brain and spinal marrow are healthy; their veins are injected with black, viscid blood. The pia mater at the posterior portion of the cerebral hemispheres, upon their convex surface and upon the cerebellum, presents several patches of true ecchymoses and well-marked sanguineous infiltration.†

The substance of the brain and spinal marrow preserves its normal consistence and texture; the medullary portion is slightly dotted with numerous minute drops of black blood. The nerves which go off from the brain, medulla oblongata and spinal marrow, present no alteration at their origin. M. Bouillaud says that he has recently dissected the nerves of the lower extremities, in a patient who had experienced violent cramps, and that he found them in a state of the most perfect integrity.‡

The phenomena of cholera appearing to indicate a suspension of function in the *ganglionic nervous system*, many careful investigations have been instituted for the purpose of determining the condition of this system after death. M. Delpech asserts that he found in his examinations, evident traces in the semilunar ganglions, of the physiological alterations they had experienced; that they were often enlarged, red, more or less injected, and sometimes remarkably softened, and that the blood with which they were injected was red, whilst the blood in the capillary system over all the rest of the body was black. The solar plexus, he says further, was always in a more or less abnormal condition, but always recognisable by the size of the nerves which compose them, often by the red injection of their neurilema and sometimes even by the softening of the nerves which form them, so that they break under the slightest effort or even the least pressure.§ The researches of Mr. Lizars, of Edinburgh, and M. Halma-Gand, appear to sustain this statement; but the investigations of MM. Gendrin, Bouillaud, Louis, Andral, and indeed all the Parisian pathologists are entirely opposed to it.

M. Bouillaud says that the important part which the semilunar ganglion and the plexuses which originate from it, are made to perform in cholera, induced him to attentively examine these parts in almost all the choleric who died in his hospital practice, and he declares

that the ganglionic nervous system did not in a single case present any lesions of structure. In some cases, the ganglions and the plexuses had preserved their normal white or grayish-white tint. But 'most frequently he observes—

“The semilunar and cervical ganglions, like many other organs, were of a rose or violet tint, with or without manifest injection; this slight lesion of colour was more evident on the exterior than in the interior of the ganglions.” p. 267.

M. Gendrin found the semilunar ganglions and all the ganglions and nervous plexuses perfectly healthy.

“Their tissue has,” he says, “its natural colour and density, if we take care to dissect these so as to prevent the sanguineous imbibition which results from the effusion of blood from the veins which are necessarily divided in the examination. It is however observed, that the nervous ganglions in the bodies of choleric subjects, often present a reddish tint which is often found after many diseases and constantly in asphyxia.” p. 97.

M. Begin has indicated a reddish colour of the *bones* and teeth as occurring in cholera, and this condition has been since observed by others. M. Gendrin states that he has found the osseous system, especially the spongy bones, very decidedly injected.

“This injection,” he adds, “is the more manifest, as the bones receive, as is known, a considerable quantity of venous blood, which even appears deposited in their cells without the intervention of any membrane. The teeth present this injection; thus their root and the half of their crown are of a red tint, which causes them to be rejected by dentists for the fabrication of false teeth. This tint does not show itself until some hours after death; it then increases for two or three days and becomes finally permanent. Persons who trade in teeth, have remarked this red tint in the teeth of those who have died of several other diseases; they say for instance, that it constantly occurs in the teeth of those who have died of variola.”

According to MM. Bouillaud and Rayer, however, this injection of the osseous system is by no means constant in cholera.

The *exterior habitude* furnishes some phenomena worthy of notice. The body is usually exceedingly rigid, and the muscles often contracted and prominent. A very remarkable phenomenon, noticed by all writers, is the spasmodic contraction of the muscles for some time after death, causing movements of the limbs, and contortions of the features. Another equally singular is, that some hours after death, the body, which had previously resisted external heat; often becomes less cold than it was at the last moment of life, and is said sometimes even to have a *general warmth* diffused over it, although removed to an apartment below 50°; in one case Mr. Harwich says, that the temperature of the body two hours after apparent death was 105° Fah.*

* London Lancet, March 31st, 1832.

Such are the principal anatomical phenomena observed in subjects who have died during the stage of collapse or asphyxia; but when death occurs in the period of reâction, very different lesions are met with on dissection. We no longer find in the digestive canal a white fluid; in its place we meet with a yellowish, semifluid substance, having the odour of faecal matter. The granular eruption of the mucous membrane of the digestive tube is less prominent, and is found less constantly. We sometimes observe, however, incipient ulceration of the follicles. The mucous membrane is exceedingly red, and presents unequivocal marks of inflammation. The stomach is often contracted, almost empty, containing only a little mucus or bile, presenting numerous rugæ on its internal surface, and the membrane thus wrinkled, presents a diffused, bright, arterial redness, as well as a capillary injection and red points. The same redness also occurs in various parts of the intestinal mucous membrane.

The bladder, instead of being empty and contracted, is often distended with urine, and we no longer meet, either in the bladder or kidneys, any of the creamy matter found in them during the stage of asphyxia.

The nervous centres and their membranes now exhibit constant and often serious lesions. Their membranes are gorged with blood and serum. The pia mater is so infiltrated with serum, that it raises up the arachnoid, and gives to the surface of the brain a gelatinous appearance. Thus infiltrated with serum, this membranous net-work is much thicker than in its normal state. The ventricles are distended by a limpid, slightly viscous serum; and the plexus and tela choroidea are gorged with it, and at the same time injected like the pia mater. The cerebral substance is injected; presents more red spots than in the algid period, and in some subjects it is less firm than in its normal state.

In some cases the spinal marrow is slightly softened.

The blue or livid colour of the body has nearly or entirely disappeared.

If the lesions which present themselves in those who have died in the stage of collapse be compared together, it will be found that the most serious and important are those of the digestive tube. In fact, there is nothing met with in any other apparatus, that can be put in comparison with the choleric fluid, and the enlargement of the follicles, not to mention the redness, gangrene, sanguineous infiltration, &c. which frequently occur. The examination of the body after death, accords thus with the analysis of the symptoms, in showing that the principal element in cholera is the affection of the digestive passages.

The question now presents itself, which of the lesions observed after death are the primary ones, and what is their nature. Those of the alimentary canal being the most numerous and severe, it would appear justifiable to conclude, that they were the primary ones; and this conclusion is confirmed by an analysis of the symptoms which shows that the manifestations of gastro-intestinal derangement precede all the other symptoms.

The only other lesion, moreover, of any consequence, or which can be suspected of preceding the gastro-intestinal disorder, is the change in the condition of the blood. Now the investigations of Dr. O'SHAUGHNESSY, who has availed himself of the second eruption of cholera in London, to repeat his chemical inquiries relative to this disease, on a most extensive scale, and with a view, if possible, to decide the question, whether the alteration of the blood be primary or secondary, and to ascertain what are the conditions of the blood in the several stages of the disease, conclusively show, that—

“1st, in the *premonitory* symptoms, no alteration of the blood exists; 2d, in the cases in which the evacuations are trivial, and *cramps* form the prominent symptoms, the blood is also unaltered; 3d, the alteration of the blood consisting in loss of water and saline matter, only occurs in the collapse cases *preceded* by excessive rice water evacuations; 4th, this alteration of the blood gradually disappears, or increases in the fever stage, according to the aggravation or amelioration of the symptoms.”

The rigorous analysis of the symptoms during life, and of the derangements met with after death, concur thus in pointing out as the lesion of the organism constituting cholera—as the constant disorder, that which is never wanting in this disease—an effusion upon the inner surface of the intestinal tube of a serous fluid, which is afterwards rejected by vomiting and purging. This secretion is dependent upon an alteration, equally constant, at least in its early stage, which alteration consists in the development of the secretory follicles disseminated over the digestive tube. The exaggerated secretion of the intestinal follicles must have been necessarily preceded by an active afflux towards these follicles, and it must also be necessarily accompanied by that state of turgescence of the secretory organs accompanying all augmented secretions—an *active* state to which Bordeu has called the attention of physicians, and of which post mortem examinations have always shown the traces when death has not occurred too late.

This fluxion towards the follicles of the digestive tube is among

the earliest effects of the cause, whatever it may be, productive of cholera, and seems to be the result of the well-known law, *ubi irritatio, ibi affluxus*. Starting from this orgasm of the follicles alluded to, we have little difficulty in showing how all the phenomena of cholera follow as natural results.

These follicles gradually increase in size under the influence of this active fluxion to them, their secretions are augmented, and thus is produced the serous diarrhœa which precedes the cholera in most instances. As soon as the secretion is increased in the whole digestive tube, sufficiently to quickly subtract from the blood a large portion of its elements, the choleric symptoms appear. Previous to this, the loss which the blood suffers is slight, the circulation repairs it continually, and this loss could not suffice to alter this fluid, rapidly and so as to be immediately irreparable. Thus, the intensity of the general symptoms is in proportion to the *suddenness* of the serous secretions. A person in whom these secretions occurred slowly, would suffer less at the end of three or four days, although he may have lost a large quantity of serum, than another would be at the termination of an hour, in whom the deperdition would have taken place suddenly, even though he had lost less serum. For the same reason the disease becomes very speedily fatal in those who have scarcely any or no discharge by vomiting or stool, but whose alimentary tube is suddenly filled by the product of the secretion, and this especially in persons whose vital powers are enfeebled by previous disease, irregular habits, &c.

Debility, coldness of the extremities, feebleness of the pulse, oppressed respiration, and syncope, are the immediate results of all sudden losses of blood: it is quite intelligible then how they occur in a disease in which the blood is suddenly deprived of some of its elements; they also occur in excessive serous diarrhœas, and in ordinary cholera. If we add to this the thickening of the blood, we will have all the phenomena of epidemic cholera.¹

In proportion as the blood is rendered thick and viscid, and the propulsive power of the heart enfeebled by the excessive choleric secretions, will the circulation be diminished. The diminution of the circulation through the lungs causes derangement of respiration—this function is imperfectly performed—hence the proper changes of the blood in the lungs are imperfectly and ultimately not at all effected, and the portion of this fluid, which reaches the left side of the heart,

* Gendrin, p. 136.

is similar to that sent to the lungs by the right side of that organ. The suspension of the general circulation, and the dark colour of the blood produces a blueness or bronze colour in those parts, in which the thinness of the skin permits the colour of the blood to be partially seen—as occurs in asphyxia. The circulation being suspended, animal heat can no longer be generated, and hence the body becomes cold. The lessening of the mass of fluids by the choleric evacuation, causes the shrivelling of the fingers and toes, as is observed in some profuse hæmorrhages; our esteemed colleague, Professor Dewees, notices it as occurring in uterine hæmorrhage. Thus are the phenomena of collapse produced.

In some cases the profuse secretions from the bowels are arrested, or diminished, either spontaneously, which is rare, or from the effect of remedies, and the circulation then has a tendency to be reëstablished, unless the blood has been altered to such a degree that all reëstablishment of the circulation is impossible—we have thus reëction—a febrile action, in which the circulation of the blood is accelerated, and that fluid propelled towards the lungs, there to be decarbonized, and towards the heart to be united with the fluids rapidly absorbed, as soon as the function of absorption is restored. The immediate result of this reëction is to repair the disorders occasioned by the intestinal secretions—the excessive secretion from the bowels having abated, and the principles essential to nutrition being supplied to the blood, the secretion of urine, of bile, &c. are reëstablished.

The difficulty to the establishment of reëction is proportional to the alteration which the blood has undergone, and the evils which follow this reëction result, at least in great measure, from this change in the blood. The brain here suffers more than any other organs, except the digestive, because the venous circulation is carried on in it by a peculiar apparatus, which renders the progression of the blood slower and more difficult, and which thus easily leads to congestions. This congestion persists notwithstanding the reëction, if the viscid and semi-coagulated blood of the sinus presents an obstacle to the reëstablishment of the cerebral circulation. Congestion is reproduced in the reëction, probably because while there is an augmentation of the activity of the arterial impulsion in the brain, the circulation through the sinuses is still retarded.

That the ganglionic nervous system performs a more or less important role in cholera is probable, since there is no irritation of the abdominal viscera of any degree of intensity, which cannot react

upon that system; but when we reflect upon the constant, extensive and profound lesions of the gastro-intestinal mucous membrane, and the rarity of any notable lesion in the abdominal ganglions and plexuses, we must admit that the affection of the ganglionic system can only be consecutive to that of the apparatus on which its ramifications are expanded.

Such is the anatomical history of the lesions in cholera, and it is in accordance with all the facts observed, and leaves none of the phenomena unaccounted for.

We have considered the fluxion to the secretory follicles of the gastro-intestinal mucous membrane as an active one, and the increased secretion from these vessels to be the result of an exaggerated action, and this view is in strict accordance with what we observe to result from stimulants, productive of increased secretions in mucous membranes. Some pathologists, not finding in the gastro-intestinal mucous membrane those appearances and alterations which they consider essential to inflammation, have assumed as the primary lesion in cholera, a stasis of the blood dependent upon enfeebled action of the heart, and referred the choleric fluid to a passive exhalation or leakage from the vessels. Not to mention other and insuperable objections to this theory, it is sufficient to state that if an adynamic state of the heart were the primary disorder in cholera, it should commence with the disease, and all the others should be consecutive, which is not the fact. Further, in cholera all the secretions except that from the intestinal follicles, are suppressed; now, if this suppression were owing to adynamia of the heart, the former secretion ought to be equally suppressed. If the choleric fluid was produced by a mere leakage from the vessels, it should consist of the fluid portion of the blood unaltered; but this is not the case; all the analyses of that fluid showing it to contain an excess of saline materials, and of *fibrine*, whilst the blood is found to be proportionally deficient in those elements.

MM. Louis and Andral appear to lay great stress upon the frequent absence of any softening of the mucous membrane, as proving the non-inflammatory nature of the secretory action of that membrane in cholera. Having is, however, only one, and by no means a constant result of inflammatory action, and even if it were, MM. L. and A. would still have to prove, to sustain their doctrine, that an exaggerated action in the secretory vessels must necessarily be accompanied by the inflammatory state of the *nutritive* vessels, productive of softening.

Other pathologists taking their notions of the essential phenomena

of inflammation from those exhibited in phlegmon, and not finding constantly redness of the gastro-intestinal mucous membrane, have adduced this circumstance in support of the same views. Here again no distinction is made between the secretory and the nutritive vessels. It seems little surprising that the prodigious demands made by the secretory vessels, should divert to themselves all the supplies of blood; and it is well known that the moment the intestinal secretions abate, and the demands for a supply of materials for these secretions consequently lessened, we have injection of the nutritive arteries, softening, ulceration, and other phenomena of inflammation of the mucous tissue.

The secretory action of the mucous follicles is then an active one, and that its character is inflammatory we have the strongest possible evidence in the fact of coagulable lymph being one of the constant products of this action. The analysis of the choleric fluid by Dr. Christie in India, and Dr. Clanny in Sunderland, show the presence of coagulable lymph in that fluid; while the analysis of the blood by Dr. Thompson shows a remarkable deficiency of fibrine in this fluid, in one case the quantity being only one-third, and in another only one-tenth, that which exists in healthy blood. Now, the effusion of fibrine is admitted on all other occasions, as in croup, peritoneal dropsies, &c. as evidences of inflammatory action having existed, there is no reason why it should not be received as such in this case.

Cholera is then, as believed by M. Bouillaud, a secretory irritation of the follicles of the gastro-intestinal mucous membrane. This form of gastro-intestinal irritation differs from others, according to M. B.—1st. As regards its symptoms, in the abundance of the evacuations, and the peculiar qualities of the rejected matters. 2d. As to its anatomical alterations, which are the immense extent of the gastro-intestinal irritation which often extends through the whole tube; the presence of two fluids, elsewhere described; the distinct or confluent eruption of the intestinal follicles, and not unfrequently gangrene of certain portions of the irritated membrane.

“It is especially in consequence of the terrible rapidity with which so vast an irritation occurs, and of the prodigious deperdition of the fluids which follows this secretory irritation, that we see the strength ~~suddenly disappear~~, the circulation diminish, the extremities become cold, the features alter, and in a word, the patients to become *cadaverized*.” p. 285.

If the views we have given of cholera be correct, the indications of cure, are in the initiatory stage to allay the irritation of the mucous

* Observations on the Nature and Treatment of Cholera, &c. &c. By Alex. Turnbull Christie, M. D. &c. Edinburgh, 1828.

follicles, and arrest the determination of blood to them; for by accomplishing this we shall prevent the exaggerated secretion, the source of the subsequent evils. In the onset of the disease, the indication is to arrest the excessive secretion, which is to be accomplished by the same means. In the collapsed or blue stage we have additional indications, viz. to supply to the blood the elements which it has lost, and to restore the circulation. In the adynamic stage various indications are presented; we have to sustain the reaction when deficient, and to moderate it when in excess; to relieve the congestion in the brain, and arrest the inflammatory disorganizing actions going on in the digestive tube. Let us now inquire into the means that have been employed to accomplish these objects.

In the preliminary stage of cholera, the irritation is to be allayed, and fluxion to the bowels arrested by soothing remedies and revulsives, among which we may enumerate absolute diet, demulcent drinks, opiates, bleeding, mustard pediluvium, &c.

"An immense majority," says M. Bouillaud, "of both hospital and private practitioners, are now in favour of the soothing, antiphlogistic method, aided by opiates and astringents in moderate doses. I can affirm, that I know of no case of mild cholera treated conformably to this simple and reasonable plan which terminated fatally, and I have heard very distinguished practitioners affirm the same.

"Thus then, as soon as an individual experiences diarrhoea, colic, or vomiting, with sensation of anxiety, oppression, or real pain in the epigastric region, he must at once be put upon a rigid diet; leeches should be applied to the epigastrium, abdomen or anus, if the patient is young, vigorous, and plethoric, blood is to be taken from the arm, demulcent drinks, gum julep, with a few drops of laudanum, are to be ordered; and repeated small enemata with four or five drops of laudanum in each administered, cataplasms or fomentations are also to be applied to the abdomen.

"It must be constantly borne in mind, that it is in consequence of having neglected or badly treated a simple diarrhoea, that many persons have been affected with intense cholera, to which so many have succumbed. This fatal occurrence will be prevented by insisting upon the preceding method, employed from the appearance of the first symptoms. It has the immense advantage over every other method, of not subjecting the patients to any catastrophe, and it does not constitute one of those games of *double or quits*, which the prudent practitioner never plays. Doubtless, in the stage under consideration, recourse has been often had, with an appearance of success, to emetics, and even to purgatives. But has it never happened that this treatment has excited or hastened an attack of intense cholera? Some facts cited in different parts of this work, seem to authorize us to answer that such has been sometimes the case. Nevertheless, we find even at the present moment that some physicians crowd the journals with articles, in which they rapturously praise the marvellous effects of purgatives, as a general method of treating cholera! The time will come, I

hope, when such deplorable precepts will no longer seduce the ignorant, and death will not be a gainer by it." pp. 321, 322.

Not a few cases have recently been recorded in the foreign journals of cholera being excited by purgatives, and several occurring in this city have come within the notice of the writer of this article. Two instances are related by M. Voisin, Intern de St. Louis, in the *Gazette Médicale de Paris*, for the 12th of June, 1832. The first was M. Dœuf, his colleague, who took large doses of resin of copaiba to act as a revulsive on the large intestines for the cure of gonorrhœa, and who was attacked with cholera, and died in fourteen hours. The second was a patient whose thigh had been amputated, and who was doing exceedingly well. Two ounces of castor oil were given him for the removal of constipation, which brought on vomiting and purging with cramps, &c. and the patient died. The stump and joint on examination presented nothing that could in the least account for the death. The patient unquestionably died of cholera. One case which has been related to us, is too striking not to be noticed. A robust labourer applied to an apothecary in this city during the prevalence of cholera for a dose of calomel and jalap, for the relief of constipation, and uneasiness in the bowels. The apothecary advised him not to take so powerful a purgative, but the man persisting, the dose was given to him, and next day he was a corpse. Other instances of the danger of purgatives might be adduced were it necessary. Where it is important to empty the bowels of any ingesta, a small dose of oil, (half an ounce,) with twenty or twenty-five drops of laudanum, we have found to answer the purpose.

In the second stage or onset of the disease, characterized by the secretion into the bowels of the choleric fluid, the treatment is nearly similar to that recommended in the first stage. To allay the gastro-intestinal irritation, demulcent drinks, as gum water or rice water, and enemata of the same with a small portion of laudanum are to be administered; small doses of morphia may also be given by the mouth. Care must be taken, however, not to administer opiates in such doses as to suppress the evacuations too suddenly, and before revulsion is effected. The temperature of the drinks should be that most agreeable to the patients; when there is great heat in the epigastrium, small pieces of ice taken into the mouth will be found to allay this heat, and also relieve the vomiting. As revulsive means, venesection, topical depletion by leeches or cups, fomentations to the abdomen, and sinapisms to the extremities, or mustard pediluvæ, are to be employed.

M. Gendrin says that in this stage of the disease he bleeds, as a means of revulsive depletion, gives a demulcent drink, as rice water,

administers enemata rendered slightly narcotic, and aids these measures by sinapisms or stimulating frictions to the extremities.

When the reaction commences, he recommends, if it is moderate, not to disturb it, but to favour the crisis by emollient drinks. If it be too violent, the bleeding is to be repeated, or leeches applied behind the ears if the head is threatened, or upon such parts of the abdomen as may become painful.

"I have not lost," he adds, "a single patient with simple cholera, whom I have treated in the phlegmorrhagic stage, and I have constantly found that it was by the mode of treatment that I have just indicated, that the disease yielded most promptly, and that convalescence, always so troublesome from cholera, was most easily accomplished."

M. Gendrin has also administered in this period small doses of narcotics by the mouth and anus, with great advantage; but he has sometimes had to regret their arresting too suddenly the evacuations. M. G. gave the sulphate of soda in one case with the effect of arresting the phlegmorrhagia, but an obstinate gastro-enteritis was the consequence.

"To modify the intestinal excretion," observes M. G. "by narcotics, astringents, and various stimulants, while we do nothing to relieve or divert the secretory fluxion to the digestive tube, is to expose ourselves to substitute for a phlegmorrhentery a most serious gastro-enteritis, or to excite a violent febrile reaction which will produce serious disorders in the head and abdomen." p. 183.

In the collapsed or blue stage, especially in its commencement, we have still the indication to fulfil, of abating the secretory irritation and the fluxion to the digestive mucous membrane: the remedies already recommended for that purpose are to be employed, but with particular reference to the condition of the patient at this time. Venesection is here to be resorted to with great caution. It must be remembered that the object of this remedy is to produce revulsion, and that this may be effected, there must be a certain degree of vigour in the circulation. In robust and plethoric subjects then, whose pulse is still to be distinctly felt at the wrist, a vein may be opened in the arm, and if the blood flow freely, and the pulse rises, or at least does not sink, a considerable quantity of blood may be detracted; but if, on the contrary, the pulse sinks, and the blood comes away only guttatim, the vein should be closed. The object of venesection is not now to be obtained. The blood no longer flows from the congested vessels to supply that taken from the vein in the arm—we do not relieve congestion or divert the fluxion from the digestive passage; the small quantity of blood we obtain is taken from that still circulating in the system, and however deteriorated in quality, its

quantity cannot be lessened with safety until the circulation is reëstablished.

When it would not be prudent to take blood from the arm, in consequence of the feebleness of the pulse, and the exhaustion of the patient, topical depletion by leeches or cups to the abdomen, may often be resorted to, with the effect of relieving the abdominal congestion and facilitating reëction; but when the collapse is complete, it is most frequently as difficult to detract blood from the surface as from a vein.

The patients even in this stage, when cold and pulseless, generally have the utmost repugnance for hot and stimulating drinks; they, on the contrary, incessantly demand cold drinks, and their desires should be gratified. Small pieces of ice, cold lemonade or gum water, or pure water, should be given them. Mucilaginous enemata should likewise be administered. Some of the English practitioners employed copious enemata of warm water, and they say with advantage. They may act beneficially as fomentations to the irritated intestines, and they also supply fluid for absorption, and when comfortable to the patient may be used. When there is, however, a sensation of intense heat in the abdomen, we think that *cold* mucilaginous enemata would be preferable, and should a favourable case present, we would not hesitate to resort to them—applying at the same time warm fomentations externally.

Bottles of warm water should be applied to the soles of the feet, and fomentations rendered somewhat stimulating to the extremities and abdomen.

Such are the principal measures to be employed for the primary lesions; but in this stage secondary disorders occur, which entail fatal results, and require the attention of the practitioner. The most important of these is the condition of the blood, which, deprived of a great proportion of its serum, saline matters and fibrine, no longer circulates, and hence coldness of the body, difficulty of respiration, &c. To supply to the blood some of its lost elements, salt and water have been injected into the veins, and with the effect most generally of reviving the circulation, relieving the breathing, and restoring animal temperature. In many cases, however, this amendment has been but temporary, and the patients have again sunk and died; and hence the remedy seems to have got out of repute. It appears to us, however, to have been too speedily abandoned. Too much was expected from it. All that it can accomplish is to remedy to a certain extent the condition of the blood, upon which the cessation of the circulation depends, thus restore this function, and relieve the phenomena

immediately resulting from its cessation. But the primary disorder continuing, the blood is soon reduced to its former condition, (probably rendered worse, since no fibrine having been supplied, its proportion is smaller,) and the secondary phenomena reappear. Whilst then the circulation is restored, the gastro-intestinal irritation must be allayed, the afflux to these organs arrested, and the secretions stopped; and as prolonging life, so as to enable us to employ remedies for this purpose, venous injection, it appears to us, may be resorted to.

It must be confessed however, that when this stage has gone to that period—when the white evacuations are replaced by red and bloody ones—when the pulse has ceased in the radial arteries—the skin icy cold, of a deep blue colour—much is not to be expected from any remedies. It is in vain now, that we resort to depletion. If we open a vein, it furnishes scarcely a few drops of black, viscid blood; and the leeches will not attach themselves, or if they do, they fall off before half filled, and their punctures do not bleed. It is impossible in this condition to induce revulsion; the connexion between the organs is broken up; remedies produce no effect beyond the part to which they are immediately applied, as has been truly observed by M. Bouillaud, “the physician has no longer to contend against disease, but against the grasp of death; and the gift of miracles is unhappily not among the number of our therapeutic means.”

Even in this condition, however, venous injection has been tried, and with the effect of reviving the circulation, relieving the disorder caused by its cessation, and apparently prolonging life.

But when nothing remains to be done for the cure of the patient, we should at least endeavour to solace him, and especially avoid distressing him.

“Now,” remarks M. Gendrin, “we would injure him, by increasing the oppression and anxiety which overwhelm him, if we heat him and give him hot drinks; we would even rapidly accelerate his death by this treatment, which his universal coldness suggests. His last moments would even be prolonged by introducing fresh air into the chamber, by giving him cold water by spoonfuls, and by allowing him to uncover his chest: these are the only means I have recommended in such cases. In hospitals it would suffice to do nothing but give water to the patients. In this stage they uncover themselves; and appear to breathe easier in a current of air, and in wards not heated; freed from coverings which would impede the painful motions of their chest.” p. 192.

M. Bouillaud describes two forms in which reaction may present itself, one a simple excitement of the sanguineous system, followed by more or less abundant perspiration, terminating the disease; in the second, irritation of the brain comes on whilst the gastro-intestinal irritation persists, and the assemblage of typhoid symptoms appear.

The treatment of the first is simple; cooling and demulcent drinks are all that is required from the physician, nature accomplishes the rest. When the reaction is too great, it must be moderated either by general bleeding, or leeches to the abdomen or anus.

The treatment of the typhoid reaction is much more difficult. The best authorities here, concur as to the propriety of antiphlogistics; for even those practitioners who deny the existence of any irritation of the gastric passages during the collapsed stage, confess its existence during the period of reaction. It may be readily conceived, however, remarks M. Bouillaud, that in persons exhausted by profuse evacuations, we cannot bleed as copiously as in those who have suffered from ordinary gastro-intestinal irritation, upon which is engrafted a more or less severe irritation of the brain. In every inflammation it is, moreover, a generally recognised principle, that the treatment ought to be modified according to the general state of the individual.

"It is not uncommon in the typhoid stage," he adds, "for bilious vomitings to replace the discharge of the choleric fluid; and still more frequently for a fatiguing and obstinate hiccup, with frequent eructations, to succeed to the vomiting; in both cases we may be assured that the stomach continues to be the seat of an active and violent irritation. We can hope to conquer this irritation only by the repeated application of leeches to the epigastric region. I have cured by this measure, very recently too, hiccup that had resisted every other mode of treatment. Opiates are here useless; antispasmodics and magnesia equally fail: if they relieve the hiccup for a short time, it does not fail to reappear, and all we often gain by their use is an increase of the gastric irritation, of which the hiccup is the effect. Ice internally and over the epigastric region has been sometimes employed with success.

"But it is not sufficient to combat the affection of the digestive passages; the cerebral affection, the source of the phenomena termed typhoid, imperiously demand an appropriate treatment. If the patient is strong and vigorous, and the pulse still retains some volume, recourse may be had to general bleeding; but if the contrary be the case, we must abstain from this measure. In every condition, leeches applied to the temples, or behind the ears, and ice to the head, should be resorted to immediately on the development of the first symptoms of cerebral congestion. The extent to which local bleeding is to be carried, and the frequency of its repetition must be determined by the violence of the congestion, and the strength, age, sex, and constitution of the patient.

"As to ice, if we wish to obtain good effects from it, its application must be continued for several hours; and it is often necessary to apply several bladders with ice, successively to the head.

"Revulsives to the lower extremities, (sinapisms and blisters,) are the best auxiliaries to these measures." p. 314, 315.

We may now notice another condition of reaction described by M. Gendrin, as of frequent occurrence. The reaction is here established with but little fever; yet there is a marked dryness of the

skin, agitation, insomnia, and deficiency of urine—in such cases M. G. says, that a tepid bath is often the best measure for altering this condition, for the relief of which, benefit is almost always derived also from prudent local depletion.

The management of convalescence is not the least difficult part of the treatment of cholera. Relapses cannot be too carefully guarded against, since they are usually fatal. Convalescence is so troublesome, observes M. Gendrin, and the disorders which attend it, though transient, and apparently not severe, are so obstinate, that the physician is obliged to modify, in many ways, the employment of therapeutic means. M. G. continues in general during convalescence the use of Seltzer water, often mixed with milk—he next allows weak broths, at first pure, afterwards with a little rice; then roasted poultry taken in small quantity, and he gradually augments the quantity of food, “as in convalescence from violent gastro-enteritis.” When there remains some tension, with heat of the abdomen, dry tongue, anorexia, irregular returns of diarrhœa or nausea, he insists further upon the antiphlogistic treatment; and frequently orders the warm bath. When the patient is troubled with anorexia, borborygmi, and frequent flatulence, and the tongue is pale, large, and pasty, M. G. says that he has had recourse, with advantage, to small doses of the bitter tonics, as the bark, &c.

We have thus cursorily sketched the outlines of what appears to us to be the rational treatment of cholera, and if the views we have sustained of the pathology of this disease be correct, it is that which, with some modifications, no doubt, must be ultimately adopted.

A very useful task remains still to be accomplished, viz. the particular investigation into the value of the various remedies that have been employed in the treatment of the disease under notice. Some of them not yet alluded to, might no doubt be advantageously employed, and it is not less important to possess accurate knowledge of the effects of those remedies which are injurious, for in a science like that of medicine, where we are often driven from our direct course by idiosyncrasies and the peculiarities of constitution of the sick, and where we are as often tempted to depart from it by treacherous symptoms, it is not less necessary to know what is injurious than what is useful. The buoy is as valuable as the guide post. Hereafter, we may undertake this task, but the length to which this article has already extended admonishes us that it is time to conclude. We must not close, however, without offering a few remarks on one or two of the most extensively used and most lauded remedies.

The first of these which we shall notice are *emetics*, whose well-

known effects in determining to the surface, led to their employment in cholera for the purpose of relieving internal congestion, and promoting reaction. That this effect sometimes follows their operation, and that even they aid in its production, testimony of too strong a character might be adduced to admit of doubt. But it appears from equally authoritative evidence that in a large number of cases they fail to excite reaction, and even in those in which it succeeds; in some the reaction is but momentary, and in others it develops accidents scarcely less fatal than those which it was employed to relieve. Thus the sulphate and hydrochlorate of soda, besides their emetic property, possess that of rapidly suppressing the choleric secretion. Now if the suppression of the evacuations were of very great importance and constituted the most direct means of determining reaction, the administration of these salts would be very often succeeded by beneficial results, for they have very frequently the direct effect of promptly suppressing the phlegmorrhagic evacuations. But this suppression "is always accompanied by an active inflammation of the gastro-intestinal villous membrane,"* and we thus have an acute gastro-enteritis substituted for the secretory irritation of cholera. Now the question to be solved is, whether the patient is a gainer by this change in his disease or not. Acute gastro-enteritis is unquestionably a most fatal disease, and no practitioner would think of wantonly entailing it upon his patient. But where the choleric evacuations are excessive, the patient rapidly sinking under the discharge—bleeding, as it were, to death—and where the direct measures for the cure of the disease have failed, it may be expedient to arrest the discharge by the salt emetic, even though at the cost of an acute gastro-enteritis.

The utility of this remedy is sustained by the high authority of our esteemed collaborator and friend, the distinguished Professor of the Institutes and Practice of Medicine in the University of Pennsylvania, who gave it a pretty extensive trial in his hospital, during the prevalence of the cholera in Philadelphia. Professor Chapman's experience, it is just to add, has led him to entertain a higher estimate of its efficacy than we have expressed; but this skilful and judicious practitioner, immediately followed up the use of the emetic, by bleeding, cups to the abdomen, and blisters to the same part, with revulsives to other portions of the body, by which the ill effects of the emetic must have been to a greater or less extent controlled.

Pain struck at the extreme prostration attendant upon this disease, many practitioners rushed immediately to the use of the most

* Gendrin, p. 240.

powerful stimulants, administered in the largest doses, for the relief of this symptom.

"For every observer," remarks M. Bouillaud, "who like the vulgar, does not look beyond the symptoms of diseases, and who takes, as it were, the shadow for the substance, the sole indication which presents itself to his mind, in the algid or collapsed stage of cholera, is to excite, reanimate, stimulate, strengthen. Absorbed entirely by the exterior phenomena, such a superficial observer cannot conceive, at first, the idea of any other indication, and he especially revolts against the antiphlogistic plan. However, if less exclusively pre-occupied with exterior symptoms, he will reflect an instant and investigate the disease more deeply, he will soon perceive that these external symptoms, the vivid picture of debility, coincide with the phenomena of a vast secretory irritation or phlegmorrhagia of the digestive organs, and that these latter phenomena even preceded the others. This gleam of light will not be lost in the treatment. The indication to restore the great and vital functions of circulation, of respiration and of calorification, doubtless will not appear to him less urgent; but he will demand whether the best means of fulfilling this indication, really consists in the application of excitants, tonics, and stimulants to a surface already too much excited, too much irritated, or whether it would not be better to soothe the irritated membrane, to cool its inflamed surface by the means we have advised, at the same time that we endeavour to revive the exhausted functions, by applying to other parts the stimulants, the positive indication for which has been discovered. Great prostration also exists in that form of gastro-enteritis which has been designated by some by the name of typhoid fever. Is it believed that it would be in accordance with a rational and sound therapeutics to combat this prostration by administering internally, as was too long done, the most powerful tonics and the most heroic stimulants? This man who has scarcely any pulse, whose extremities are already cold, has fallen into this state entirely in consequence of an acute or of a sub-acute inflammation of the peritoneum; would you revive him, warm him, by injecting stimulants and tonics into his peritoneal cavity?

"It is not sufficient then to ascertain the existence of phenomena which indicate excessive prostration; it is necessary to seek the source of this prostration, without which we run the terrible risk of aggravating the evil in endeavouring to relieve it. I declare, with the most perfect conviction, and with that good faith without which no one is ever worthy the name of physician, that whoever in the present state of our knowledge respecting the nature of cholera morbus, would propose as the principal basis of the treatment of this formidable disease, internal stimulants and tonics, would commit, to use an expression of Bichat's, the most fatal therapeutic absurdity. That this method was employed in the commencement of the epidemic, that is at a period when we were for the most part, I am bold enough to say it, in the grossest ignorance of the true nature of cholera morbus, may be conceived, excused, even approved to a certain point. That this method may have been so lauded as to have been tried by physicians who now yield to it but very moderate confidence, does not astonish me, for I myself once employed it. But its use should be forever abandoned. Experience and reason, in accordance here with the instinct of patients, equally

prove this. If it is not immediately followed by very serious accidents it incontestably disposes to typhoid phenomena, which so rarely spare those who have escaped the collapsed stage." pp. 298-300.

The extreme coldness of the body in the algid stage of cholera, seems to have led some physicians to think that the most important indication in the treatment was to warm the patient, and the mere enumeration of the various methods devised for this purpose, would occupy several pages. At present it is known that the application of external warmth effects little towards the cure. To heat a cadaverised choleric patient, is not to revive him, as is just remarked by M. Bouillaud. We revive him only in proportion as we place him in a condition to warm himself, that is, by reviving the circulation and relieving the fundamental lesion upon which the algid condition depends. The patient is not in a dangerous state, threatening immediate death, because he is cold—on the contrary, his coldness results from this dangerous state. Nearly all the recent writers appear to accord, indeed, as to the inutility and even injurious effects of resorting to measures for heating the body. "Heat and dry vapour," says M. Gendrin, "are of all the measures employed against cholera, the most dangerous, and those which have done most harm." The testimony of Professor Chapman is to the same purpose. The suffering induced by them is equal, he says, to that he has ever witnessed from the application of any remedial process.

It appears to us, that they can be only useful as revulsives, and that they cannot act as such, except in the early stages, or in the mild cases of the disease. Cold water douches and frictions with ice, appear to have been productive of more benefit than warm applications.

The saline treatment, as recommended by Dr. Stevens, has attracted no little notice, but the statements of its effects are so utterly contradictory, involving even the veracity of the relators, that it is impossible to judge what value experience will ultimately affix to it. This treatment is, however, based upon false principles, viz. that the essence of the disease consists in the deficiency of saline matters in the blood—a condition which is but a secondary effect, and one of minor importance. In the premonitory stage, this deficiency, as is shown by the analysis of Dr. O'Shaughnessy, does not exist; the employment of the remedy then, for the fulfilment of that supposed indication is useless. Whether it possesses any prophylactic power; how far it is useful in the later stages by supplying proper materials for absorption, and to what extent its utility in this respect is counteracted by its tendency to occasion ordinary gastro-enteritis, are points we are not at present prepared to discuss.

BIBLIOGRAPHICAL NOTICES.

XVIII. *Memoire sur l'Empoisonnement par des Mélanges de Substances Veneneuses*
 Par M. ORFILA.
Memoir on Poisoning produced by Mixtures of Deleterious Substances. By M.
 ORFILA. Paris, 1832.

Difficult as the detection and verification of poisons, even when in a simple and uncombined state, confessedly is, the task becomes a hundred-fold more intricate when two or more of these substances have been ingested either in union, or in close succession. The symptoms and lesions produced by the action of many of these mixtures have it is true been described in most works on Medical Jurisprudence, but no rules had been laid down for the verification of them, until the appearance of this memoir of the great toxicologist. In the course of experiments he undertook for this purpose, many remarkable and unexpected phenomena presented themselves. Sometimes articles which it was supposed were not susceptible of decomposition, reacted on each other, so strongly, as to form new compounds, unrecognisable by the usual tests for the original substances. So complete indeed, is the change, that it would oftentimes be extremely difficult, if not impossible, to ascertain what poisons had been administered in a combined form, by the mere aid of chemical investigation, the medical jurist must here rely in great measure on other evidence, as the discovery of certain articles in the possession of the accused, or of his having recently purchased them.

It is impossible to give more than the general results of the numerous experiments of M. Orfila in the present notice, and we must therefore refer such of our readers as wish to pursue the subject in all its bearings, to the original memoir.

Mixture of corrosive sublimate and arsenious acid.—This may be detected by treating the mixture with cold sulphuric ether, and repeatedly shaking the mixture, the sublimate will be dissolved, and may be obtained by evaporation. Even if the two poisons were dissolved in water, the ether will separate the mercurial salt.

Corrosive sublimate and acetate of copper.—This is to be treated as in the last case, the acetate of copper not being soluble in ether.

Corrosive sublimate and acetate of lead.—Here also the ether is to be made use of.

Corrosive sublimate and tartar emetic.—The same process as above.

Corrosive sublimate and nitrate of silver.—Solutions of these salts mutually decompose each other forming an insoluble chloride of silver and a soluble deutonitrate of mercury.

Corrosive sublimate and nitrate of bismuth.—The sublimate can be separated by means of ether.

Mixture of equal parts of corrosive sublimate with different acids, where the acid is either the nitric, sulphuric, or phosphoric.—The free acid is to be saturated with potash, taking care not to use any excess of it, evaporate to dryness, and heat, the corrosive sublimate will sublime, leaving a sulphate, nitrate, or phosphate of potash, in which the presence and proportion of the acid can readily be determined.

Oxalic acid.—Saturate with potash, treat with alcohol which will dissolve the mercurial salt and leave the oxalate, which is to be decomposed with acetate of lead, forming an insoluble oxalate of lead, from which the oxalic acid can easily be separated.

Proto-nitrate of mercury and verdigris.—When strong solutions of these salts are mixed together, a white precipitate of proto-acetate of mercury takes place, leaving a deuto-nitrate of copper in solution.

Proto-nitrate of mercury and arsenious acid.—When solutions of these substances are mixed together, a white precipitate is formed, which is insoluble in arsenious acid, but soluble in nitric acid.

Proto-nitrate of mercury and acetate of lead.—This mixture may be ascertained by diluting it with water, and adding hydro-chloric acid, which will precipitate the mercury in the state of a proto-chloride, and will form with the lead a proto-chloride soluble in the water of the mixture.

Proto-nitrate of mercury and tartar emetic.—In solution they mutually decompose each other, forming a white precipitate of proto-tartrate of mercury.

Deuto-nitrate of mercury and arsenious acid.—Arsenious acid forms a white precipitate with the deuto-nitrate of mercury, except there be a great excess of the acid, in which case the mixture remains transparent, giving a yellow precipitate with potash, a carmine one with hydriodate of potash, and a yellowish-green one with ammoniacal sulphate of copper.

Deuto-nitrate of mercury and acetate of copper.—On solutions of these two salts being mixed together, a slight turbidness is produced, and in a few hours, a precipitate of a dirty colour is formed; this is the deuto-acetate of mercury, whilst the fluid contains deuto-nitrate of copper, and some deuto-acetate of mercury, which has not precipitated.

Deuto-nitrate of mercury and tartar emetic.—These two salts mutually decompose each other, giving rise to an abundant white precipitate.

Arsenious acid and acetate of lead.—There is an extraordinary phenomenon produced by adding nitrate of silver to a solution of three parts of the saturnine salt, and one of the arsenious acid; it produces a yellowish precipitate, mixed with white crystalline acetate of silver and yellow arsenite of the same metal. Now, it is well known, that arsenious acid causes a white precipitate with nitrate of silver. M. Orfila is of opinion, that in the present case, the arsenious acid attacks the oxide of lead in displacing the acetic acid, and this arsenite of lead acts by double decomposition on the nitrate of silver.

Arsenious acid and tartar emetic.—Analysis. Boil the mixture with carbonate of potash and soluble arsenite and tartrate of potash and oxide of antimony, will be obtained; the latter is soluble in hydro-chloric acid, affording hydro-chlorate

of antimony. The fluid is to be treated with hydro-sulphuric acid and a few drops of hydro-chloric acid, giving a precipitate of the yellow sulphuret of arsenic; the filtered fluid treated with lime will afford tartrate of lime.

Arsenious acid and acetate of copper.—To analyze this mixture, M. Orfila recommends it to be boiled with distilled water; the result will be soluble arsenite and acetate of potash, and insoluble deutoxide of copper, which latter may be readily recognised by dissolving it in nitric acid. The fluid is to be distilled in a close vessel, with a small quantity of sulphuric acid; there will be a disengagement of acetic acid, recognisable by its smell; when about one-third of the fluid is left, the process is to be stopped; this fluid is to be diluted with water, and treated with hydro-sulphuric acid, when a precipitate of the yellow sulphuret of arsenic will be produced.

Arsenious acid and nitrate of silver.—This may be analyzed by carbonate of potash, which will form with the arsenious and nitric acid, a soluble arsenite and nitrate; and with the oxide of silver a carbonate of silver, decomposable by heat, so as to leave the silver in a metallic state.

Arsenious acid and nitrate of bismuth.—This mixture may be analyzed like the preceding.

Arsenious acid and alum.—To analyze this mixture, it is to be dissolved in boiling distilled water, then an excess of hydro-sulphuric acid added, which will precipitate all the arsenious acid in the form of a yellow sulphuret; the filtered fluid will contain the undecomposed alum.

Arsenious acid with other acids.—*Sulphuric.* Can be separated by distillation; the sulphuric will pass over, carrying with it a small proportion of the arsenic, but the greater part of this latter will be left in the retort. *Nitric or Hydro-chloric.* Also can be separated by distillation. *Phosphoric.* Hydro-sulphuric acid causes a yellow precipitate; nitrate of silver a white. The two acids can be separated by distillation. *Oxalic.* To separate these two acids, the mixture is to be evaporated to dryness, and treated with alcohol, which will dissolve the oxalic acid alone.

Acetate of copper and acetate of lead.—The mixture is to be treated by a solution of subcarbonate of potash, which will give rise to a soluble acetate of potash, and a mixture of deutoxide of copper and protoxide of lead; these two oxides may be dissolved in nitric acid, and the obtained nitrates decomposed by sulphuric acid, which, if not in excess, will give a soluble sulphate of copper, and an insoluble sulphate of lead. The fluid which contains the acetate of potash is to be treated by sulphuric acid to obtain the acetic.

Acetate of copper and tartar emetic.—Solutions of these salts decompose each other, and furnish a precipitate of greenish-blue of tartrate of copper.

Acetate of copper and nitrate of silver.—To analyze this, precipitate the silver in the form of a chloride by means of hydro-chloric acid, and evaporate the fluid to obtain the cupreous salt.

Acetate of copper and nitrate of bismuth.—This mixture may be detected by an excess of ammonia which will form a soluble ammoniaco-acetate of copper, and leave the oxide of bismuth undissolved.

• *Acetate of copper and phosphoric acid.*—Phosphoric acid precipitates this acetate of a bright blue colour, and if in excess will redissolve the precipitate.

Acetate of copper and oxalic acid.—Oxalic acid precipitates the oxide of copper of a blue colour, except the solutions be much diluted. Hydro-sulphuric acid precipitates this mixture of a black colour.

Acetate of lead and tartar emetic.—These solutions mutually decompose each other, giving rise to an insoluble tartrate of lead and acetate of potash.

Acetate of lead and nitrate of silver.—To be detected by diluting with water, and adding hydro-chloric acid which will precipitate the silver in the state of a chloride, leaving the chloride of lead in solution.

Acetate of lead and nitrate of bismuth.—May be analyzed by diluting the mixture with water, acidulating with nitric acid and adding sulphuric acid which will precipitate the lead in the state of a sulphate, leaving a sulphate of bismuth in solution.

Tartar emetic and nitrate of silver.—This mixture can be verified by means of carbonate of potash which will precipitate the two oxides. Boiling nitric acid will dissolve that of the silver and leave the peroxide of antimony.

Tartar emetic and nitrate of bismuth.—A mixture of these solutions forms an abundant precipitate.

Tartar emetic and various acids.—Sulphuric, nitric, hydro-chloric and phosphoric acids precipitate a solution of tartar emetic of a white colour. Oxalic acid has no effect on it.

Nitrate of silver and nitrate of bismuth.—By adding hydro-chloric acid to a mixture of these solutions, the silver will be precipitated in the form of a chloride, whilst the salt of bismuth will remain in solution.

Nitrate of silver and various acids.—Sulphuric acid gives a precipitate which is soluble in water. Nitric affords an acid nitrate. Hydro-chloric throws down chloride of silver, and oxalic a white oxalate. Phosphoric gives a mixture which is precipitated of a black colour with hydro-sulphuric acid, &c.

Laudanum and arsenious acid.—Laudanum will dissolve but a small quantity of arsenious acid, and hence the greater portion can be obtained by filtration. That in solution can be detected by hydro-sulphuric acid.

Laudanum and corrosive sublimate.—Forms a precipitate. The presence of the mercurial salt can be demonstrated by adding sulphuric ether which will dissolve it—and it can be obtained by evaporation.

Laudanum and acetate of copper.—Exhales a smell of laudanum. The copper can be detected by means of a rod of bright iron. Where there is a great excess of laudanum, a brownish-yellow precipitate will be formed.

Laudanum and tartar emetic.—Resembles laudanum in smell and colour. The antimony can be demonstrated by precipitating it by means of hydro-sulphuric acid.

Laudanum and nitrate of silver.—Preserves the appearance, smell and taste of laudanum. Forms a black precipitate with hydro-sulphuric acid, and a dark olive one with potash. A rod of bright copper will revive the silver.

Laudanum and acetate of lead or nitrate of bismuth.—These salts form an abundant precipitate with laudanum.

In the above experiments, M. Orfila has merely observed the effects of mixtures without the addition of any other substance, and he justly remarks, if even in this case there is much embarrassment and difficulty, how much more are these increased when these mixtures are united with the contents of the stomach,

&c. In such a state of things, he orders the suspected fluids to be evaporated to dryness by a gentle heat, the product treated with boiling distilled water, to get rid of a portion of the animal matter, then filtered, decolorized by means of animal charcoal, and then the tests applied as above.

It should also be observed, that all the above experiments are solely intended to demonstrate the nature of the poisons, and not to determine the exact proportions of each; where this is wished, other and more complicated processes must be resorted to.

The whole memoir is an additional proof of the discriminating judgment of the author in this department of science, and will amply repay an attentive perusal.

R. E. G.

XIX. *Principles of Physiological Medicine, in the form of Propositions; embracing Physiology, Pathology, and Therapeutics, with Commentaries on those relating to Pathology.* By J. F. V. BROUSSAIS, M. D. &c. Translated from the French by ISAAC HAYS, M. D. and R. EGLESFELD GRIFFITH, M. D. &c. 8vo. pp. 594. Philadelphia, Carey & Lea.

The present work is unquestionably a very important and necessary companion to the Treatise on Physiology as applied to Pathology, by the same author. The two works present a very fair exposition of the principal features of the physiological doctrine of medicine as taught by its celebrated founder. From no other source can a complete acquaintance with it be obtained—at least with so little trouble and in so satisfactory a manner. Into the actual value of that doctrine, when tested by a course of clinical investigations, and its agreement or disagreement with the results of actual experience, it is unnecessary at present to examine. As a mere object of curiosity, in consequence of the long and bitter controversy to which it has given rise, there is no member of the medical profession but must desire to make himself conversant with its peculiarities, and the facts and arguments by which it is attempted to be supported; and when he reflects that its announcement formed a new era in the history of our science, and that through its influence important changes have been effected in the medical opinions, modes of reasoning, and practice held and pursued by the physicians of almost every school and country, he will be led as a matter of duty to its attentive study, in order that he may keep pace with the actual advances of his profession. From whichever of these causes an interest may be excited in the doctrines advocated by M. Broussais, the present work will form an indispensable addition to the library of every physician.

It presents in a corrected form his celebrated propositions first published in 1821, with very full commentaries on such of them as relate especially to pathology. In these commentaries, the peculiar views of the author in reference to the nature and character of the several morbid conditions of the human frame are minutely detailed and illustrated by various facts and arguments.

The author assures us that in these commentaries he has faithfully related what he has seen concerning pathological phenomena, what he has done to remedy them, and what he has observed in the bodies of those who have died. "Nothing is easier than at the present time, to verify these facts, and to see

whether, the inductions which will be drawn from them, for man always forms some conclusions from what he has seen, are conformable to those of the author himself." In this manner the correctness of the doctrines of physiological medicine can be readily tested by comparing the deductions upon which it rests with the facts which every day present themselves to the notice of the industrious and observing practitioner, even though the sphere of his observations be far more limited than that afforded by the wards of an extensive hospital.

In the preparation of his commentaries, M. Broussais states that he has for four years constantly laboured with his whole soul, in all the frankness and good faith of which he was capable, making it a duty to include in them the result of his experience and of his meditations.

The work under notice proves M. Broussais not to be so obstinately opposed, as has frequently been asserted, to the slightest modifications of the opinions originally announced by him, even when these opinions have been clearly proved to be incorrect; on the contrary, it will be found that he seizes with avidity, upon every fact which the investigations of his contemporaries have succeeded in bringing to light, and whenever these militate against the conclusions to which he had previously arrived, he cheerfully admits and corrects his error. The attentive reader will find, in perusing the present work, that in various particulars his doctrines have been modified in accordance with truths subsequently established. The main features nevertheless remain unchanged.

Of the manner in which the translation is executed it will be improper to say any thing in this place. If they who are conversant with the French, detect a few slight inaccuracies, they must confess at the same time that these could scarcely be avoided, in the translation of a work of the peculiar character of the present. In many instances the sense of the original could be rendered in the English only by an awkward periphrasis; in attempting to avoid which, by a more concise and literal rendering, the sense of the author is occasionally somewhat obscured; but as a whole, the fact of its clearness and fidelity will be universally conceded.

D. F. C.

XX. *Manual of General, Descriptive and Pathological Anatomy.* By J. F. MECKEL, Professor of Anatomy at Halle, being an English translation from the French. With Notes. By A. SIDNEY DOANE, M. D. of New York. 3 vols. octavo. pp. 500. Philadelphia. Published by Carey & Lea, 1832.

The very general celebrity of this work of Professor Meckel, and its acknowledged merit, have made an English version of it, an acquisition of no small importance to the profession of medicine. An intimate acquaintance with it from repeated reference and consultation, has placed it in the opinion of the writer of this article, among the most classical, learned, and authoritative treatises on anatomy, under the very modest cognomen of a manual; it is in fact a system quite as full as can be well desired, either for the student of medicine, or for the practitioner. So far from the professor having the appearance of being cramped for the want of space, the most of his observations, except those on pathology and physiology, are made with a diffusiveness certainly equal to any disposition for study found commonly among medical men.

While we admit that he might have proceeded deeper into a sort of interminable description, we doubt whether he would have improved by it either the lucidness or the estimation of his work. He has, we think, preserved a very fair proportion between the value of his ideas, and the quantity of language into which he has thrown them; a merit of no small importance, considering the brevity of human life, and the necessity of our working up its scraps of time to the best advantage.

We think it one of the most remarkable faults of modern medical literature, and especially that of our British brethren, on almost all the subjects discussed by them, that they seem to dread and to put off the development of the idea which they wish to inculcate, so that it requires no small patience and good nature to hunt out what they mean. We have often thought that it would be an excellent plan for those diffuse writers, to give for the benefit of impatient readers an algebraical statement of what they intend, and to leave for the patient ones the body of their productions, with all its circumlocutions and superfluities. There are many men whose reputation would be much benefited by presenting their ideas prominently and disencumbered. We have thus disposed of Mr. Meckel's apologetic name for what we consider a sufficiently complete system of anatomy.

Dr. Doane has performed his duty of translator in a manner extremely creditable to him, and, so far as we can judge, with general accuracy. He certainly deserves praise for his constancy in getting through an English version of more than fifteen hundred closely printed pages, and we hope that he will be well rewarded in reputation and advantage for this effort to place before the American student a work of such decided value. By persons conversant with German, the French translation has long ago been declared as defective in representing the ideas of Mr. Meckel on several points, and sometimes in making him say contradictory things. This of course would be a radical objection to an English version, taken from the French as the present is, without some guard against these errors, but from the preface of the translator it gives us pleasure to perceive that Dr. Doane has had the assistance of Dr. Alfred C. Post, whom he represents as a good German scholar, in detecting and correcting these errors. It perhaps would have been more satisfactory if he had given us a distinct pledge that they were all corrected or omitted.

W. E. H.

XXI. *Elements of Practical Pharmacy.* By ROBERT JOHN KANE, Professor of Chemistry to Apothecaries' Hall, Dublin, &c. Dublin, 1831. pp. 549 12mo.

This work is intended for the student of pharmacy, and is certainly well adapted as a text book of the principles upon which the more important pharmaceutical operations are founded. The author has not attempted to explain all or even the greater proportion of the minor processes pursued in the manipulation of medicines, but has confined himself to an elucidation of a number of circumstances, with which a student of pharmacy is expected to be thoroughly acquainted, and yet which are not sufficiently detailed in any work in the English language. In fact, whilst on the continent of Europe, and more especially in France, numbers of excellent works have appeared on the elements of pharmacy, we are miserably deficient, both in Great Britain and the United States,

in these important aids to the student. It is true we are in possession of several excellent commentaries on the different pharmacopœias, but these are only calculated for, and useful to the experienced pharmacist and not to the mere tyro.

In a short introduction, Mr. Kane gives some useful rules for the collection and preservation of various articles of the *materia medica*, with tables of the time of the year for the collection of each; the loss in drying, &c.; the author has here, as indeed is the case throughout his work, drawn largely on the stock of valuable information laid before the world by the members of the *Société de Pharmacie de Paris*.

Part one is devoted to the consideration of the mechanical operations required in the determination or preparation of various drugs; one of the most frequently used of these is that of weighing, and there is no one in which a greater degree of accuracy is requisite, for an error even to an apparently trivial amount, may occasion consequences detrimental not only to the character of the operator, but also to the proper medicinal effects of the substances prepared by him. This part of Mr. Kane's treatise is excellent, being even more practically useful than that on the same subject in Faraday's valuable precepts, and is illustrated by a greater number of comparative tables of weights, &c. than are usually to be met with in works of this character. That however of drops and minims is inferior to that of Mr. Durand, in the American edition of the *Manual of Materia Medica*.

The second chapter is on the operations by which bodies are mechanically divided. These are of various kinds, but do not require any particular notice in this place; the results of all these processes, however, require other operations, which are next treated of by the author—those by which bodies are mechanically separated; these processes are various, and include the modes of separating solids from solids, solids from fluids, and fluids from each other. The next chapter takes up a diametrically opposite class of operations, or those by which bodies are mechanically mixed, which concludes this division of the work.

The second part is devoted to chemical processes, and opens with an introductory chapter on heat, as an agent in pharmaceutic operations, including the modes of estimating its degree as well as the modes of applying and regulating it; Mr. Kane's observations and directions on this subject are judicious and practical, but contain nothing that is peculiar or deserving of particular notice.

The second part itself is replete with instruction and will richly repay an attentive study; parts of it, however, we think is better calculated for the experienced pharmacist than for the beginner in the science, more especially those sections of it which refer to particular preparations. Taken as a whole, however, the work is admirably suited to supply the blank spoken of at the commencement of this notice, and entitles Mr. Kane to much praise for the clearness and judgment of his practical precepts, which he has very properly given without any admixture of theory or speculation. Much as has been done there is nevertheless still an opening for a work on the plan of Faraday's *Chemical manipulations*, giving those minutæ of various pharmaceutic operations on which the beauty and even the efficacy of so many preparations are mainly dependent.

R. E. G.

XXII. *Lehrbuch der Operativen Chirurgie*. Von Dr. ERNEST LEOP. GROSSHEIM, Königl. Preuss. Stabsarzt, Inhaber des Königl. Preuss. Allgemeinen Ehrenzeichens 1ster Klasse, Ritter des Kaiserl. Russ. St. Wladimir Ordens 4ter Klasse, Mitglied der Med. Chir. Gesellschaft zu Berlin und der Med. Chir. Akademik zu St. Petersburg. Erster Theil. pp. 559. Berlin, 1830. Zweiter Theil. pp. 697. Berlin, 1831.

1 *Compendium of Operative Surgery*. By Dr. ERNEST LEOPOLD GROSSHEIM, Physician of the Royal Prussian Staff, Member of the Medico-Chirurgical Society of Berlin, of the Medico-Chirurgical Academy of St. Petersburg, &c. &c. 2 vols. Berlin, 1830, 1831.

Amongst the various works, which have recently appeared on the subject of operative surgery, none have afforded us more satisfaction, than that which we have announced above. It is precisely such a manual as we should be pleased to see placed in the hands of every student of surgery, for whose use it is admirably adapted. Nor would it prove less useful to the practitioner, who would find in its pages all the most approved operative procedures of his art, delineated in a clear, comprehensive, and concise style, and arranged in a perspicuous and natural order. It is not extended by any thing superfluous, or mystified by vague and useless speculations. It may, indeed, be said to contain the very quintessence of the science, divested of all extraneous materials.

Under each head the author gives a brief exposition of the objects of the operation, and a succinct account of its history, in which are traced the various procedures which have been employed up to the present time. He then lays down the circumstances which call for its employment; those by which it is contraindicated; the instruments and apparatus necessary in its execution; the disposal of the patient and assistants; the different acts or steps of the operation itself; the particular variations of them which will be necessary to suit special conditions or emergencies; the application of the dressings, together with the after-treatment of the patient. Nor does he confine himself to the exposition of a single method of operating, in any particular case in which more than one may be adopted. He lays down the order of procedure to be adopted in each, with the same detail; discusses their several advantages and disadvantages, and thus leaves it to the option of the surgeon, to adopt that which he may consider best adapted to any particular case.

The work is divided into two parts; the first of which treats of those operations which may be practised upon any part of the body, while the second embraces the consideration of such as are only performed upon particular regions; as the head and neck, the trunk, and the upper and lower extremities. This order is sufficiently natural, and is, we think, much better than the method sometimes adopted of grouping together the different operations according to their affinities, without any reference to the parts upon which they are to be performed.

We cannot conclude without expressing our regret that so little attention is paid in this country to the rich fountains of German medical literature, and, that while we are translating, so freely from the French, so many invaluable productions which are constantly issuing from the German press, are suffered

to remain as a sealed volume to the members of the profession in America. We have already recommended a translation of the excellent manual of Chelius, as one of the best handbooks for students, on the principles of surgery, with which we are acquainted. We will now take the liberty of recommending the adoption of the same course with regard to the work of Dr. Grossheim, which we consider one of the best manuals of operative surgery that could be put into the hands of our students.

E. G.

XXIII. *Handbuch der Chirurgie zum Gebrauche öffentlicher Vorlesungen.* Von JOSEPH EDLEN V. WATTMANN, ordentlichem öffentlichem Professor der Praktischen Chirurgie, Direktor des k. k. Operateur-Institutes, Mitglied der Königlich medicinisch-chirurgischen Akademie zu Neapel. I. Theil 1. Band. Allgemeine Krankheitslehre in Beziehung auf örtliche Gebrechen. II. Theil 1. Band. Allgemeine Heilungslehre in Beziehung auf örtliche Gebrechen. pp. 281 und 244. Wien, 1829.

A Manual of Surgery, for the use of Public Lectures. By JOSEPH EDLEN V. WATTMANN, Professor of Practical Surgery, &c. &c. Vienna, 1829.

This work, as will be seen by the title, is divided into two parts; the first of which is devoted to the general pathology of such local diseases as affect the whole system; the second to the general therapeutic management of the same affections. The author announces it as his intention to treat, in subsequent volumes, of the special pathology and therapeutics of the remaining surgical diseases. The first part of the portion of the work commences with some preliminary observations, in which the author indulges in some speculations upon the proper merits of theory and experience, with which we are not much concerned. He seems to adopt the old maxim that—*nilhil est in intellectu, quod non prius fuerat in sensu*. He next furnishes us with a general definition of disease, after which he enters more directly upon the proper discussion of the subject. The order in which this discussion is conducted may be conceived from the following exposition.

“As in all diseases, the organism may be considered as in part active, and in part passive, their general pathology may be reduced to two heads. The first division will include the mere disturbance of the organism, which may be considered under three divisions. The first will relate to the causes of disease, (*Ætiology*;) the second to their nature or essence, (*Pathogeny*;) the third their form or external manifestations, (*Symptomatology*.) The second division will include the phenomena of the reaction of the organism, and may likewise be divided into three parts:—1. The phenomena of slight, or ordinary reaction, (*the cause and termination of disease*;) 2. Extraordinary local reaction, (*Inflammation*;) and 3. The same extraordinary reaction, affecting the entire organism, (*Fever*.”) p. 22.

Each of these subjects is discussed in detail; the various circumstances and contingencies involved are carefully examined, and ably illustrated, and the whole of this portion of our author's labours, taken collectively, may be considered as furnishing a very good exposition of the general pathology of the diseases of which he professes to treat.

The second part of the work opens with some general definitions of the therapeutic art, and a brief history of its development, as connected with surgery.

To this is appended a very good chirurgical bibliography. The author next enters more particularly upon the doctrines of general therapeutics, which are discussed under various heads. The restoration to health or the cure of disease he considers as a natural act of the organism, brought about by its own inherent powers, influenced by its internal acts, modified by the reciprocal agencies of its several parts, and the exercise of external impressions upon it. He discusses, in order, the circumstances which modify or determine the sanability or insanability of diseases; the influence of external agents; as the situation or condition of the part, activity and repose; the exercise of the function of a particular organ; sleeping and waking; the air and the part it bears as a medium through which are conveyed the impressions of other agents; aliment; clothing; the various remedial agents, as well those that act upon the mind, as those which exercise their influence upon the body, &c. &c. It will thus be seen that he has embraced a wide range, and has omitted but few topics which could possess an important bearing in the treatment of diseases. He goes to work like one who is acquainted with the powers of the organism, and what it is capable of accomplishing. He presents himself before us as a philosophical surgeon, and not a mere dealer in recipes and specifics. One who looks to nature for the cure of disease; who is prepared to stand by to assist her in the struggle, although he knows, that without the coöperation of her powers, all his best disciplined efforts will be vain and nugatory. We have, on the whole, been much pleased with Professor Naumann's work. It contains much useful matter; abounds with many judicious reflexions, and, we doubt not, will be found highly useful to those who attend his lectures, as well as to all who will take the trouble to read it.

E. G.

XXIV. *Theorie der Praktischen Heilkunde, ein Pathologischer Versuch.* Von Dr. MORITZ ERNST ADOLPH NAUMANN, Professor der Heilkunde an der Universität Berlin, &c. &c. pp. 279. Berlin, 1827.

Theory of Practical Medicine. By Dr. ERNST ADOLPH MORITZ NAUMANN. Professor of Medicine, &c.

This is a valuable little work, and contains much important information, on the subjects of which it treats, in a small compass. Professor Naumann commences with a brief exposition of the general properties of the organization, and of the phenomena of life. These are preliminary to the discussion of the several topics which he has to pass in review. He then considers the general characters of diseases, which he divides into those of simple congestion, inflammation, spasm, paralysis, and finally, fever. From these considerations he passes to the examination of the various modifications to which these diseases are submitted in the several tissues, and in the blood, and the disturbance of function to which they give rise. The course, duration, and termination of disease, are next examined, from whence he proceeds to discuss the subjects of diagnosis and prognosis, and finally concludes with an exposition of the general principles of therapeutics. Upon all those topics the author has spoken with much good sense, and we may observe, that his work, although one of moderate pretensions, is a creditable performance.

E. G.

XXV. *A Treatise on Obstructed and Inflamed Hernia, and on Mechanical Obstructions of the Bowels internally; and also an Appendix, containing a Brief Statement of the Cause of Difference in Size in the Male and Female bladder.* By HENRY STEPHENS, Member of the Royal College of Surgeons. London, 1829. pp. 191.

Mr. Stephens writes like a plain man, who has been forcibly impressed with facts which have occurred to him in practice, with inferences which he has drawn from these, and with other analogous cases encountered in the course of his reading; and who has consequently been induced to make the results public for the benefit of his contemporaries. These are among the most valuable class of medical communications; and though we might be disposed to find fault with the simplicity and occasional inaccuracies of his style; yet from the very simplicity of his manner, we draw a conviction of a serious good faith and a love of truth, which are truly invaluable, and we feel certainly strongly inclined to receive his statements of facts with favour and confidence, and his reasonings with respect. Similar to this appears to be the opinion generally entertained in his own country, as far as we can judge from a series of extracts inserted in the volume, and taken from a letter of Sir Astley Cooper, and from different periodicals. From his dedication and preface, and the tone of his work, we should take him to be a young surgeon of much originality of thinking, and who yet entertained a great respect for the high authorities of art, who had enjoyed opportunities for observing and leisure for reflection, and was strongly persuaded of the real value of the opinions he inculcates.

The leading object of his essay is to point out the frequent occurrence of death in hernia, from other causes than strangulation. These may coëxist and coöperate with strangulation in producing that effect; or they may be of themselves sufficient. The second of them in Mr. Stephens' distribution of his book, but which we shall put first, is inflammation of the hernial sac and its contents. This he conceives to arise in frequent and daily instances, without compression by any stricture, and from all the diversity of causes which may be supposed to act upon parts so situated. Besides these cases, however, he apprehends that death may occur without either constriction or inflammation, and by the simple obstruction of the passage of the intestinal contents. This, together with inflammation, is familiar to the readers of our most common authorities, as a consequence of internal strangulation, volvulus and intussusception; but Mr. S. apprehends that surgeons have overlooked the daily production of similar results from the *adhesions* so commonly found both within hernial sacs and in the cavity of the abdomen. The study of these gives rise to some curious and interesting researches in relation to their symptoms and treatment, and the possibility of their occasional cure by operation.

We have placed inflamed hernia first, for the convenience of comparing it the more readily with the idea, more familiar to all our minds, of strangulated cases. Obstructed hernia, if our author be right, differs more widely in its analogies. Mr. Stephens proceeds from the simpler to the more compound case; a method which, however philosophical, does not answer our present purpose. We are attempting to engraft his observations upon the tree of knowledge al-

ready in our possession, and shall begin with the more analogical, proceeding afterwards to the remoter.

No elaborate view of the causes of inflamed hernia is given by Mr. S. We shall perhaps better introduce his ideas by the following extract.

"The contents of a rupture are said sometimes to become inflamed in connexion with an inflammation of the bowels generally, and totally independent of any cause arising from the rupture. That this may sometimes be the case is probable, but I believe such instances are extremely rare. These inflammations, I believe, are almost always generated by the morbid condition of the parts within the rupture, and afterwards become quickly communicated to the interior of the abdomen. Large irreducible herniæ, more especially umbilical, are those in which this form of disease mostly occurs; which appears to partake more of the character of enteritis than of ileus. A small portion of confined intestine, however intensely inflamed in itself, does not so necessarily or so quickly communicate its disease throughout the abdomen, it being of comparatively local origin; but when the contents of a large hernia become inflamed, as a sequel, (I believe,) of various chronic confinements and changes of structure in the parts, the disease, from the first, will be of a more diffused and general character, and will more extensively and quickly communicate with the interior."

The local causes, pointed out by Mr. S. are the unnatural situation of the organs prolapsed, the collection of digested matters above the obstruction, and a previous diseased state. To prove the latter, he appeals to the experience of surgeons, in which it is so often found that the protruded intestines and particularly the omentum are in a morbid condition. Several cases are given, extracted from authors, with one of his own; and then succeeds the following diagnosis and comparison.

"Inflammation of the contents of a rupture may be distinguished from a strangulation of such parts by the more gradual approach of the symptoms, and by their less degree of violence. From obstructed hernia from adhesion, it is to be distinguished by the pain and tenderness of the parts generally preceding the obstruction, and by there being more decided marks of an inflammation existing. Pain, with inflammation throughout the abdomen, is generally soon manifested in inflamed hernia, whereas, in obstructed hernia, it is a late symptom, and in general scarcely prevails at all. Obstructed hernia may possibly be followed quickly by inflammation; and then it would become altogether as a case of inflamed hernia, and require an earlier operation.

"In inflamed hernia, the viscera of the abdomen are very extensively inflamed throughout. In obstructed hernia, very slight traces of inflammation are in general visible after death. Cases of strangulation are of an intermediate kind; the inflammation being almost wholly confined to the seat of stricture, and the parts above it, the intestines below being in a state of collapse and uninfamed."

The author then proceeds to point out the possibility of an inflamed hernial sac proving the source of a mortal inflammation of the bowels and peritoneum. In these cases lymph and pus are contained in the sac; and it is recommended to discharge the fluids by a puncture.

Obstructed hernia is illustrated by several cases, some of his own, and some obtained by reading. In the first, reported by himself, and which originally attracted his attention to the subject, there were extreme weakness, loss of voice, stercoraceous vomiting, faintings and hiccup. These alarming symptoms were the gradual growth of nine days, and were produced by an umbilical hernia.

"Reflecting," says Mr. S. "upon the history of this case, I concluded that

the symptoms, although not those of strangulated hernia, were yet such as would be produced by any permanent and mechanical obstruction in the bowels, I therefore considered that it was not only possible but highly probable, that the obstruction was in that portion of the bowel which was contained in the hernial tumour. I therefore determined instantly to cut into the hernial swelling, and examine the condition of the parts, and thus see if relief was possible."

"The sac was freely opened; and a portion of intestine was found reducible, and another irreducible, in consequence of an adhesion in a position which "at once," says our author, "accounted for the symptoms."

"It was so closely united by adhesions to the hernial sac as to obstruct, to all appearance, its peristaltic action, and prevent the due course of its contents. There was no stricture; for I passed my finger very easily into the abdomen by the side of the intestine, which was somewhat discoloured. I relieved the bowel from its adhesions to the hernial sac, partly by the knife and partly by the finger, with the assistance of my friends; and pushed the intestine into the abdomen, passing my finger^d in and around the opening on the inside, to be satisfied that there was no further adhesion. I then sewed up the wound."—Soon after "her countenance wore a less anxious appearance, but her pulse continued very low and fluttering, and she still felt a great sense of sinking, but rather less than usual. She continued in this manner for three days, slowly improving. I gave her aperient medicines and injections, which did not operate very freely. On the third day, I gave her a strong dose of aperients, which produced copious discharges; the pulse, after this, *immediately* began to rise, the sense of sinking almost instantly went off, and she rapidly recovered."

From this case, with one more of his own, and a number compiled from authors, and somewhat elaborately compared through about sixty pages, Mr. Stephens infers, that death may be and frequently is, caused by simple obstruction to the passage of the feces, without the necessary occurrence of inflammation, that the presence of accumulated feces is a circumstance in itself dangerously depressing to the animal economy, which is relieved by purging, and that such obstructions as are here alluded to are often produced by adhesions, which retain folds of intestine in an angular position, or in some other way contract their cavity or impede their action. The presence of such obstructions he infers from the occurrence of most of the ordinary symptoms of strangulation in a hernia, and especially stercoraceous vomiting, accompanied with indications of rapid sinking; which symptoms, at the same time, have come on too gradually, and lasted for too long a time to be reasonably attributed to strangulation, and are not accompanied with marks of inflammation. Some part of them frequently occur in a less degree, or even to a violent and dangerous extent, threatening with the extinction of life, and afterwards subside, generally by free purging. They are most frequently brought on by eating food either indigestible, flatulent, or in too great quantity. The surgeon is seldom called until some severe attack has succeeded to a number of recurrences in the milder forms.

To relieve these distressing and dangerous cases, when the urgency is great, Mr. S. recommends opening the sac, separating the adhesions entirely, and returning the viscera into the cavity of the abdomen. The separation should, if possible, be made with the fingers, or the handle of the scalpel; but if really necessary, the edge of the knife may be employed; the operator gathering up the intestines in his hand, and gently drawing the adhesion on a stretch. *Dis-eased omentum should be excised*; and the author further suggests the dissec-

tion of the sac free from its cellular attachments, and the returning it into the cavity of the belly, with the view that its raw and recently divided surfaces should close the inner abdominal ring, by adhering to its inner orifice; the writer seeming to be of opinion that this would effect a permanent cure. He gives, in confirmation, a successful attempt of this kind upon a bitch affected with hernia; in which, however, the abdominal parietes were closed by a quilled suture.

Mr. Stephens proceeds to make some other remarks which our space prevents us from noticing fully. Among these is an attempt to show that *tenesmus* is the best distinguishing sign of obstruction from intussusception, or the presence of foreign bodies in the intestinal cavity; when compared with obstruction from external pressure. A physiological explanation of this will easily suggest itself. Another is the statement, as a fact, in his appendix, that the superiority in size of the female bladder over that of the male, is in all instances a consequence of pregnancy.

In commenting on the above, we remark little of novelty, unless it be in the observations on obstructed hernia. The description of inflamed hernia is certainly sufficiently familiar; it is included in all the common accounts of strangulation, but the other subject may require a little further inquiry. Of the frequent occurrence of cases of long duration, successfully relieved by an operation, no doubt can exist among readers. We quote from Sprengel's History of Medicine, (VII. 182, French Ed.) the case of Saviard, in which this result took place on the 22nd day, as supposed, of strangulation. The details are not given; but it seems hardly credible that a forcible impediment to the circulation could have existed during all that time without destroying the patient's life.

Yet it appears to us that this subject of obstruction has not been overlooked by authors who have preceded Mr. Stephens. Thus, in Mr. Pott's definition, as given by Cooper, "if the prolapsed body cannot be immediately replaced, and the patient suffers pain, or is prevented thereby from going to stool, it is called an incarcerated hernia, a strangulated hernia, or a hernia with stricture." Here it is obviously intended to include all cases of simple obstruction; without necessarily requiring the cessation of the arterial circulation. According to Mr. Hey, quoted in the same place. "So likewise in very large and old hernias, where there is reason to doubt whether the disease is not to be considered as a morbid affection of the intestinal canal rather than the effect of strangulation, purgatives may be useful," &c. And many others have recommended purgatives; under the use of which, as is well known, many cases presenting all the symptoms of strangulation, recover without any resort to the knife. Again, Mr. Samuel Cooper, in a book so common as his First Lines, gives a very neat account of the affection, (3d Am. Ed. II. 95,) in which he refers to "the French surgeons," for his authority. In the *Viet. de Med.* XI, 103, we have a very good notice of this affection, by M. Moreau. It is highly probable that further search would readily furnish many descriptions of this well known affection.

The views of Mr. Stephens, however, would in our opinion, require much confirmation before we should feel authorized to recommend the performance of an operation for the purpose of removing adhesions. Whether, when a hernial sac is already opened, we should make it a rule to separate adhesions and return the viscera to the abdominal cavity, is a very different question, and one

requiring a distinct consideration. Yet even here our author might have found authority quite sufficient for his purpose. See Cooper's *First Lines*, II. 109; and still more, the *Dictionary of Surgery*, 5th Lond. Ed. p. 642, col. 1.; & also the *Dict. de Med.* XI. 114, 115. In p. 115, particularly, we find an allusion to the case of an adherence producing danger from its confining the intestine in an acute angle; which is, of course, to be separated, and the part returned to the abdomen, if this be not rendered impracticable by other causes. Nearly all, then, that remains to our author, is the suggestion that obstruction without arterial and venous strangulation occurs with rather more frequency than is commonly supposed; and that operations should in consequence be performed at a more early period, and with rather more freedom than is at present the case; a precept in which he has the support of many judicious surgeons. B. H. C.

XXVI. *Epidemia l'ajuolosa, del 1829 in Torino con cenni relativi al suo primo apparire in qualche Provincia litorale nel 1828, ed alla diffusione dalla capitale a vicinia Provincia dell' Interno nel 1830. Aggiuntivi J Lavosi Vaccinici, e le Osservazioni degli operatori.* Per T. D. GRIVA, del Collegio Medico de Torino, Vc. Direttore Generale delle Vaccinazioni. pp. 249. Torino, 1831.

An Account of the Varioloid Epidemic, which prevailed at Turin in 1829, together with reflexions on Vaccination, &c. &c. By T. D. GRIVA, of the Medical College, Director-General of Vaccination, &c. &c. Published by order of the Secretary of State for internal affairs.

For this very able account of the varioloid epidemic, which ravaged Turin and the surrounding provinces in 1829, we are indebted to its author, a distinguished member of the medical college of that city, and director-general of vaccination. It was drawn up and published by order of government, and not only contains a very lucid and satisfactory exposition of the characters of the epidemic, but likewise some very interesting facts relative to vaccination, its efficacy as a prophylactic measure, and the most efficient means of securing its advantages. We regret that it came to hand too late for a more extensive notice for the present number of our journal. We shall, in our next, however, furnish our readers with a full analysis of its interesting and valuable contents. In the meantime, we beg leave to assure the respected author of our esteem, and our thanks for his polite attention. E. G.

XXVII. *Cases of Cholera collected at Paris, in the month of April, 1832, in the Wards of MM. Andral and Louis, at the Hospital la Pitié.* By James Jackson, Jr. Boston, Carter, Hendee, and Co. 1832. pp. 212, 8vo.

The Cholera Spasmodica, as observed in Paris, 1832; comprising its Symptoms, Pathology, and Treatment. Illustrated by Cases. By ASHLEIGH SMITH, M. D. of North Carolina, officially attached to the Necker Hospital, during the prevalence of the Epidemic. New York, Peter Hill, 1832. pp. 80, 8vo.

The courage displayed by the American medical students, who were in Paris during the prevalence of cholera in that capital, and the devotion to their profession evinced by them, is worthy of all encomium. Undismayed by the terrors of a devastating pestilence, rendered doubly terrible from the excitement of an

ignorant populace, they remained at their posts, devoted themselves most assiduously to attendance on the hospitals, and amidst their arduous labours, they have hastened to communicate to their brethren at home, the valuable results of the experience they collected.

In our last No. we presented to our readers an interesting account of the epidemic at Paris, by Drs. Pennock and Gerhard, two industrious young physicians of Philadelphia; we have now to call their attention to the two creditable memoirs on the same subject, the titles of which are at the head of this article.

The first consists of cases collected in the wards of MM. Andral and Louis, two of the most distinguished pathologists of Paris, followed by some interesting observations, and with tables formed in accordance with the numerical system introduced into the study of pathology by M. Louis. This memoir is by Mr. James Jackson, Jr. son of the eminent Professor of the Practice of Medicine in Harvard University; and is in every respect a creditable performance, and an earnest of future distinction. That this pledge may be redeemed, the son has only to take as his model his father—whose undeviating rectitude of conduct, simplicity of character, and ardent devotion to the advancement of his profession, has placed him on its highest pinnacle.

The second memoir is by Ashbel Smith, M. D. of North Carolina, who was officially attached to Hôpital Necker, during the prevalence of the epidemic, and of the zeal with which he attended to his duties, the most emphatic testimony is borne by the principal physician of the hospital. Dr. Smith gives a brief sketch of the first appearance and progress of the disease in Paris, with its symptoms, the post mortem appearances, and treatment. Even at the present moment, when so many elaborate works on the subject have appeared, this little essay has not lost its interest, nor will any one read it without advantage.

QUARTERLY PERISCOPE.

FOREIGN INTELLIGENCE.

ANATOMY.

1. *On Nervous Ganglions, and on the Origin and Nature of the Intercostal Nerve.* According to Professor SCARPA, the ganglions consist entirely of divisions and subdivisions of the nervous filaments which enter into them; they are surrounded by a soft cellular tissue, and imbued with fluids, and these filaments reunite again to pass out from the ganglions. The compound ganglions receive filaments from different origins, the cords which pass out from them, are necessarily formed of filaments coming from these same various origins.

The trunk of the intercostal nerve and its branches contain as many filaments as intercostal nerves which come from them, and also nerves of the fifth and sixth pairs; as to the sixth, it is not known whether it gives or receives. The intercostal nerve, to speak accurately, has no separate existence, but is formed by the junction of almost all the others. It is the same with the brachial plexus; each branch which comes out, carries with it filaments of all those which enter it, (the inferior cervical, and first dorsal.) The inferior branches of the intercostal are the most compound; thus in affections of the bladder, and of the uterus, they disturb the whole body. A question naturally arises, that since the intercostal receives filaments from all the spinal nerves, why is it not subject to the will? The difference observed in the firmness of its texture, compared with that of nerves of sense, is not a sufficient reason; and the effect which has been attributed to its ganglions, of intercepting the effects of the will, is neither proved, nor probable; but the explanation of the fact is found in the confirmation which the opinion of Galen has lately received, by the experience of M. Panizza, relative to the different faculties of the two roots of the spinal nerves. We now know, in fact, that the anterior roots give motion, and that the posterior, which have a ganglion, sensibility. It is the same with the cerebral nerves; and Mr. Charles Bell has shown that the section of the sub-orbital nerve, (branch of the fifth pair,) destroys the sensation of the lips, and of the nasal region, and that of the facial nerve, (coming from the seventh pair,) destroys the motion of the same parts.

The fifth pair is divided into two parts, the smaller which is distributed to the muscles of mastication, the larger which is appropriated to the senses. The lingual branch of the latter is devoted to the function of taste; but it is the ninth pair which gives motion to the tongue, and to the os hyoides. M. Scarpa thinks, moreover, that the nerve of the eighth pair, upon which he has found immediately after it goes out from the cranium a ganglion, a character which he regards as appertaining exclusively to the nerves of sensation, could only be destined to give sensibility to those parts in which its filaments are distributed, whilst the accessory nerve could give motion to those which are of a muscular nature. Setting out from these facts, M. Scarpa has carefully examined

from what roots the filaments, which go to the intercostals, arise; and he has discovered that these filaments invariably arise from the posterior. A little above the ganglion, these filaments, at first to the number of three or four, and which are afterwards united into one or two cords, pass above the anterior root, and sometimes envelope it, as in a net-work, or even traverse it. Attention and skill are necessary to distinguish these variations. Thus Schmidt is deceived in believing that the filaments of the intercostals come from the anterior root; they certainly arise solely from the posterior, for they originate before the reünion of the fasciculi arising from the two roots. It follows hence, that the fleshy fibres of the heart and of the stomach do not receive filaments from the nerves of motion, but from those of sensation. They owe their excitation to the blood and to the food, and not to the will.

In a second letter, M. Scarpa returns to the character which he attributes to all the nerves of sensation, of having ganglions. The cerebral nerves have them, according to him, whenever they are sensitive. Thus the olfactory has its bulbous extremity. The large portion of the trigemini, ganglionic at their origin, has also the ophthalmic, sphenopalatine, and maxillary ganglions. None of the filaments which pass off from it, go to the muscles. The par vagum hardly passes from the cranium, when it swells out into a ganglion. "It might be objected, perhaps," says M. Scarpa, "that the ophthalmic ganglion comes partly from the motor oculi; I deny this second origin; it comes from the nasal branch of the fifth pair; the little band which passes out from the branch of the motor oculi, destined for the obliquus minor, is a cellular, and not a nervous ligament. This nasal nerve also gives off ciliary branches below the ganglion, and the motor oculi does not give off any; thus the motion of the iris does not depend on the will."

One would be tempted to suppose, from what has been just said, that the muscles of the eye, by an exception of which they would be the sole example, receive only nerves of motion, and not of sensation; but M. Scarpa believes that they also receive the latter. He suspects that the abductor receives a twig of that, which proceeds directly from the brain, and accompanies the nerve of the sixth pair. As to the others, they receive, according to his authority, their sensibility from the filaments, which, passing out from the superior cervical ganglion of the intercostal, turn themselves towards the eye following the course of the carotid artery, the ophthalmic artery, and its divisions. But how is it, that nature, when the ciliary nerves are so near, should cause the former to originate from such a distance? It is a question which the author proposes without attempting to solve. The posterior roots of all the spinal nerves, after having passed beyond the ganglions of the sensitive roots, unite very intimately with these latter. The same union may there be seen on a small scale, as in the great plexuses. These are the sensitive filaments, which, disentangled from the end of the others, go to the skin to constitute the organ of touch. It is necessary then to abandon the idea, that the touch is exercised by the same nerves as motion.—(*Extract of two letters addressed by M. Scarpa to M. Weber.*)

2. *Formation of the Sub-occipital Nervous Ganglion.*—Sæmmering, Cloquet and Meckel, in speaking of the sub-occipital nerve, say that its ganglion occurs at the union of the two roots of this nerve. The researches of Dr. Vittorini, made upon more than twenty-four subjects, have demonstrated to him in an indubitable manner, that this ganglion is constantly found upon the posterior root, three or four lines before its reünion with the anterior. "I have never seen," says Dr. Vittorini, "the posterior root wanting, and the nerve then formed solely by the anterior root, as Morgagni and Vicq-d'Azyr have sometimes observed. The only anomaly which I have met with, was in the course of the fibres of the posterior root, these fibres were separated into two fasciculi, one of which was situated before, the other behind the accessory nerve, which was seen included in, and interwoven with these two fasciculi. All the anterior fibres are reünited at the accessory nerves in forming a very small ganglion, those of the pos-

terior fasciculus united in part to this ganglion, and in part passed beyond, to be reunited to some fibres of the anterior fasciculus. It is this reunion which forms the remainder of the posterior root, which after passing this point had a regular course."—*Osservatore Medico*, July, 1831.

PATHOLOGY.

3. *Cases of an Eruptive Disease arising from the use of Cubebs.*—JOHN NORTH, Esq. relates in the *London Medical and Physical Journal*, for March last, the two following cases, in which an eruptive disease was produced by the use of cubebs.

"CASE I. Capt. P. after trying various remedies for the cure of an obstinate yet trifling gleet, took, of his own accord, large doses of cubebs three times a day. On the fourth day from the commencement of the remedy, he complained of great restlessness, flushing of the face, sickness, and head-ache. On the fifth, he was covered with an eruption from head to foot, which was accompanied by a high degree of sympathetic fever. The peculiar appearances of the eruption I will attempt to describe in the next case, which was more severe, and attended by more strongly-marked characters. Captain P. recovered in a few days, by the assistance of mild aperients, salines, and confinement to the house: he was, of course, desirous to discontinue the cubebs. Upon a subsequent occasion, he again ventured to try the remedy, but he gave it up after taking one dose of it, in consequence of feeling the same general symptoms of restlessness, &c. which had preceded the former attack.

"CASE II. Madame T. had long laboured under severe leucorrhœa, and, from motives of delicacy, had neglected to consult any medical practitioner. She was recommended, by a friend, to try the effects of powder of cubebs, in doses of a small tea spoonful twice a day. After the first two doses, she felt feverish, with a tingling and heat over the whole surface of the body; she had rather severe head-ache, and a very disagreeable sensation of fulness in the eyes; the hands and feet felt hot and numbed. On the third day, a 'flush of red' broke out over the whole of the body; and on the fourth, a decided eruption appeared. The cubebs was now discontinued, six doses having been taken. On the fifth day, my attendance was required: her appearance was now peculiar, and rather formidable: her features were so completely changed, as to leave no trace of their natural expression; the face was excessively swollen; eyes turgid and watery; lips pulled, dry, and shining; coryza; hands much swollen, and so stiff that the fingers could not be bent; respiration hurried and difficult; pulse small, and varying from 120 to 130; skin burning hot; intense thirst; tongue very white; constant nausea, and occasional vomiting. She was covered with an eruption from head to foot, which, in some parts, could not have been distinguished from Urticaria febrilis, while in others it had more the appearance of lichen in its papular stage, but with much more intense inflammation around the base of the papulæ than is commonly seen in that disease. A fortnight elapsed before this lady completely recovered. The remedies employed, consisted of purgatives, salines, and mild anodynes at bed-time."

Mr. North says that several other cases of the same kind, but milder in degree, have fallen under his care; and a very striking case is recorded in the *Archives Générales*, for November, 1831. A young man was admitted into La Pitié under M. Velpeau, with gonorrhœa, which had existed for two months. After a few days, he was ordered a mixture containing cubebs, copaiva, and magnesia, in the proportions of two drachms of copaiva to four of cubebs. He took this mixture daily, and on the sixth day he was attacked with violent itching and burning over the head and neck. In the morning, his face was covered with dark red patches, and in the course of a few hours, this appearance of the skin, as well as the itching and sensation of burning, had extended over the chest and arms. The following day the abdomen was attacked in the same manner. On the third day, the efflorescence that had at first appeared, be-

came pale, but the legs and feet now presented a similar appearance. The case might easily have been taken for measles, if the cutaneous symptoms only had been regarded, but there was none of the characteristic constitutional disturbance that attends that disease: the general health was, in fact, undisturbed. In the course of a few days the eruption entirely disappeared; and if any doubt had existed as to its cause, it was completely removed by the following circumstance: about three weeks after his recovery, the patient repeated a dose of the medicine, which he had accidentally kept; the eruption appeared on the following morning, and remained for two or three days.

A similar eruption is sometimes occasioned by the use of balsam copaiba; and two or three cases of the kind are related by Dr. Hewson in the 5th Vol. of the North American Medical and Surgical Journal.

4. *Case of Rupture of the Kidney.* By JAMES LAIDLAW, Esq.—October 11th, 1829. Alexander Elliot, a remarkably fine, healthy young man, twenty-one years of age, while running at full speed, came unexpectedly in contact with the iron palisades of one of the squares, and struck his abdomen against them with such force that he was thrown to the ground by the shock; he immediately got up, and not feeling himself, at the moment, much hurt, walked home, a distance not greater than a hundred yards. Soon after he got home, he became very sick, and vomited, but did not consider it of much consequence, till about two hours afterwards, when, having occasion to make water, he found nothing but blood flowed from the bladder; and he then became alarmed, and, procuring a coach, had himself conveyed to the hospital.

At the time of his admission, when I first saw him, he was pale, cold, and covered with a clammy perspiration; his countenance was anxious, and he was greatly agitated. Upon a superficial view, he appeared far more alarmed than injured. He complained of pain in the belly, particularly in the right hypochondriac region; his pulse was full and regular, at seventy-five. At his request some milk and water was given to him; but, immediately upon drinking it, he vomited it up. Twenty leeches were applied to the abdomen without delay.

In the evening the symptoms became more alarming; the vomiting increased, and was accompanied with constant hiccup, which greatly distressed him, the pain in the belly was also much greater; he rolled about in the bed, was very irritable and restless; the anxiety of countenance was much increased, and the respirations were more frequent than natural. He did not complain when the abdomen was pressed with the hand. As he had not made water since his admission, I introduced a catheter, and drew off about ten ounces of fluid, apparently chiefly blood, and directed that fifteen more leeches should be applied to the belly.

Upon visiting him early the following morning, (Oct. 12th,) he said he was somewhat easier, but had passed a miserable, restless night, and had been greatly distressed by the constant vomiting; his countenance was still very anxious, and he appeared to be suffering a good deal from alarm and agitation. A catheter was introduced, and twelve ounces of bloody urine drawn off: this he said greatly relieved him. Towards night he became much worse; the belly was swollen and tense, and he complained of great pain upon the application of the hand, the vomiting was not abated, and it distressed him much more in consequence of the tenderness of the abdomen. It was found necessary to continue the use of the catheter, and the urine was deeply tinged with blood. Pulse small, sharp and regular, its frequency not increased; tongue natural; skin hot and dry; and he complained of great thirst, which could be only partially allayed by moistening his mouth, as every thing he swallowed was instantly rejected. R. Hydrarg. Submur. gr. ij. Pulv. Opii, gr. ss. statim. Haust. Potassæ Citrat. quartâ quâque hora.

October 13th.—Somewhat better; he has had some sleep during the night, and is greatly refreshed; the belly is less painful, and the swelling is diminished: he has passed about a pint of urine without the catheter. As his bowels were

confined, he was ordered an enema, and it has produced a copious evacuation, which he says has made him feel much more comfortable. Pulse small, sharp, and much increased in frequency; tongue white and moist. V.S. ad $\frac{3}{4}$ xij. To continue the medicines.

October 14th.—He is greatly improved; his skin is cooler, and there is less irritability in the pulse; his bowels have been opened several times, and he passes his water naturally; he suffers very little. The blood drawn yesterday cupped and buffed. Ordered V.S. ad $\frac{3}{4}$ x. Haust. Acetat. Ammon. \bar{c} Liq. Antim. Tart. \mathcal{M} x. quartâ quâque hora.

October 16th.—Since the day before yesterday he has been gradually getting better: the pain in the belly has almost gone, and the only thing he now complains of is great thirst and an uncomfortable fullness of the belly. The blood which was taken on the 14th exhibited no inflammatory appearance.

For several days after the last report, every thing appeared to be going on favourably, and he seemed to be getting well rapidly, when suddenly, on the evening of the 21st October, he became much worse; his skin again became hot and dry; his tongue parched and covered with a brown fur; and the anxiety of countenance, which was so apparent at first, had again appeared; he complained of great pain in the right lumbar region; the pulse was full and frequent, but regular. As his bowels had not been opened during the day, an enema was ordered, and he was directed to take the following powder every four hours: R. Pulv. Rhei. gr. v.; Hydragr. \bar{c} Cretâ, gr. iij. M. fiat pulv.

On visiting him the following morning, (October 22d,) I found him in less pain than the preceding evening, but the other unfavourable symptoms were unabated. In the course of the day he had a severe shivering fit, which lasted for several minutes, and the pulse became very small and quick. Upon examining the belly, the part originally injured seemed to incline to the side, and appeared to contain fluid. He was directed to continue the medicines, and to have hot fomentations to the belly.

He continued in nearly the same condition during the two following days, (October 23d and 24th,) appearing only to get a little weaker; but on the morning of the 26th, it was evident that there was no hope of saving him, as he was sinking rapidly. He complained of no pain in any part; he was perfectly sensible and collected, frequently saying that he had made up his mind to die; his countenance was sallow and very anxious, and he appeared to breathe with great difficulty; the pulse was too quick to be counted; the tongue was black and dry, and the skin hot, and without the slightest moisture. He fancied he should like some soda water, and it was accordingly given him, with small quantities of wine occasionally. At seven o'clock in the evening he died, having survived the accident just fourteen days.

The body was examined eighteen hours after death. Upon opening the cavity of the abdomen, the intestines appeared of a dark sooty colour, which was all that was remarkable in them. The whole of the solid viscera were in a healthy condition, with the exception of the right kidney, which, as had been anticipated, was found to be the seat of the mischief: by the injury it had been broken across just below the pelvis, and in it and the surrounding cellular membrane a large abscess was formed, which contained about three pints of fluid of a light brown colour: this was supposed to be pus mixed with urine.—*London Medical and Physical Journal, Feb. 1832.*

5. *Case of Propagation of Ringworm by Contagion.*—M. COLLINEAU communicated to the Académie Royale de Médecine the following fact. In an establishment which contains between eleven and twelve hundred females, there is a particular department appropriated for the reception of girls from ten to sixteen years of age, in which they have communications only with each other, and with the persons intrusted with the care of them. In the month of August, 1831, a child with a ringworm on her shoulder, about ten or twelve lines in diameter, was admitted into this establishment. Two months afterwards, one of her companions had a similar ringworm on her arm, and also on her left cheek.

At the end of four months, the greater part of the others were affected with the same disease, attacking the arms, thighs, neck, hands, &c. By the 7th February, no more than three out of seventeen remained who were exempt from the disease, and of these one subsequently, as well as the matron, was affected.

It is impossible, observes M. Collineau, to doubt that these ringworms were communicated by the child admitted into the establishment in the month of August, as previously there were no affections of that kind in the house, and as the dormitory in which she slept was the only one affected. The situation is healthy, and the diet good. The author in reporting these cases of contagion, does not the less acknowledge the rarity of the communication of scaly cutaneous diseases.—*Archives Générales*.

6. *Calculi in the Veins of the Spermatie Cord, &c.*—In the fourth volume of Meckel's *Archiv. für Physiologie*, Tiedemann detailed some observations on calculi found in the veins. Since then, further information has been communicated by Otto,* Boujalsky†, and Lobstein.‡ Otto found them most frequently in the venous plexuses of the womb and vagina, and occasionally also in that of the bladder. For the most part, the persons in whom they were found were more than fifty years old. He once discovered them in the veins of the prostate in an old man. In all the cases the veins were varicose, and contained coagulated blood, in which the calculi were deposited. In two instances, gouty concretions existed at the same time in the joints; and such was the case in the man in whom the calculi were found in the veins of the prostate.

The concretions were either whitish or yellow, and of a pearly lustre, and they varied in magnitude, from the size of a millet-seed to that of a pea. They were round and oval, sometimes uneven on the surface, and consisted of concentric laminae. Boujalsky found five calculi in the veins of the spermatie cord of a man fifty-seven years of age; four of these lay detached in the blood, and one was connected with the internal coat of the vein. Lobstein has found them in the veins of the testicles, of the womb, of the bladder and rectum, and once in the veins of the spleen. Dupuytren discovered them in the anterior and posterior tibial veins; and Tilorier in the varicose subcutaneous veins of the leg. Bouillaud has repeatedly seen them in old varices of the lower extremities.

Since Tiedemann's former publication on the subject, he has several times observed calculi in the veins of the bladder, rectum, and womb. The most remarkable instance was that of a man, fifty-one years old, in whom numerous concretions were formed in the varicose veins of both spermatie cords. In the veins of the right, he counted fifteen of these calculi; in that of the left, twenty-one. The smallest were about the size of a mustard-seed, the largest exceeded a line in diameter; they were either round or oval, and of a yellowish-white colour. In general they lay disengaged in the coagulated blood, but some were attached to the inner coat of the vein by means of a very thin transparent membranous covering. In some parts of the varicose dilatations, soft fibrous masses adhered to the internal tunic of the vein, which Tiedemann supposed to be the nuclei of similar concretions. Cruveilhier has seen calculi adherent to the inner coat of the vein.

Gmelin subjected some to analysis, and found them to consist of—

• Animal matter	-	-	-	-	-	-	27.5
Phosphate of lime	-	-	-	-	-	-	53.5
Carbonate of lime	-	-	-	-	-	-	15.5
Magnesia and loss	-	-	-	-	-	-	3.5

100.

Two explanations have been offered as to the origin of these concretions. Tiedemann, Otto, and Lobstein, conceive that they are formed in the varicose

* Neue seltene Beobachtungen zur Anatomie, u. s. w. Berlin, 1822.

† Voienno-Meditsinski Journal. Petersburg, 1827.

‡ Traité d'Anatomie Pathologique. Paris, 1829. T. i. 504.

dilatations of the veins, from the deposition and aggregation of the earthy matters of the blood. Others have imagined that they originate in the coats of the veins, in a similar manner to the calcareous concretions in the coats of arteries, and are subsequently detached. Their rounded form, and uniformly smooth surface, are opposed to the latter explanation. When they are attached to the inner coat of the vein, Tiedemann suggests that the connexion arises from inflammation excited by their presence, and the consequent effusion of coagulable lymph.—*London Medical Gazette*, July, 1832, from *Tiedemann's Zeitschrift für Physiologie*, iv. b. 1 heft.

7. *Case of Puerperal Peritonitis, followed by Ascites and the Spontaneous Perforation of the Abdominal Parietes.*—An instance of this is related by Dr. PUKROUS in the *Revue Médicale*, for May last. Two openings were formed, one on the seventeenth or eighteenth day of the disease, beneath the umbilicus; another two days afterwards in the upper part of the left hypogastric region.

MATERIA MEDICA.

8. *New Principle in Cinchona.*—M. VAN MONS has discovered a new principle in the bark of the *Cinchona montana*, which is white, crystallizable, and extremely bitter. The discoverer calls this *Montanine*, and says that he has cured intermittent fevers in three days with it, in doses of two grains a day.—*Buchner, Repertorium für die Pharmacie*.

9. *Lunar Caustic Blister.*—In the 5th Vol. of the *Transactions of the Medical and Physical Society of Calcutta*, we find an article by J. C. BOSWELL, Esq. in which the lunar caustic is recommended as a substitute to cantharides for producing vesication. Mr. B. has used that remedy in pneumonia, phthisis, rheumatism, dysentery, &c. with, he says, decided utility. The blister is formed by slightly wetting the part, and then slowly drawing the stick of lunar caustic over the surface to be blistered, first longitudinally, and then across. The fluid is discharged by small punctures, in about ten hours after the application of the caustic; and no covering being used throughout, the surface becomes in two or three days sufficiently dry to admit of a second application, in the same place if necessary. Mr. B. has put on more than thirty of these blisters in the course of treating a pulmonary case, making the intervals longer as the cure proceeds.

The advantages which the nitrate of silver, applied as a blister, possesses over cantharides, according to Mr. B. appears to be that its action is more immediate, and effect more powerful; it does not affect the urinary organs—requires no dressing—is easy of application, and always available—being so easily carried about.

Mr. Twining, the intelligent secretary of the society, has appended to this paper some remarks confirmatory of the statements of Mr. Boswell. He says that he has found the caustic blisters very useful in chronic rheumatism of long duration, affecting the joints, and unattended with pyrexia, and with little or no acute local inflammation.

10. *On the Diuretic Properties of Lichen Vulgaris.* By Dr. STEVENSON, of H. M. 13th Light Dragoons, at Trichinopoly.—The *Lichen vulgaris* is found in abundance at Bangalore and Trichinopoly; its Tamul name is Kull-pashie; and its decoction in milk is used by the natives in that part of India as a diuretic; but they are not acquainted with its efficacy when applied as a poultice over the loins. Dr. Stevenson recommends the lichen to be boiled in water, and bruised in a mortar; it is then to be applied over the region of the kidneys, as a poultice, and renewed twice a day: using at the same time only laxative me-

dicines, when requisite. Dr. S. mentions the case of a man, who had suffered for many months from dropsy, his abdomen being very tumid and undulating; urine scanty; extremities œdematous; countenance bloated, and skin harsh and dry. A poultice of *Lichen vulgaris* was applied over each kidney, and produced its diuretic effects so freely, that a quart of urine was voided every second hour, to the interruption of rest. In ten days the circumference of the man's belly had decreased a foot: the dropsy was cured, and the man's health restored. The remedy was used in July, 1829, and the patient remained well when last heard from, sixteen months after. The 2d case was a Dragoon, who had anasarca, the symptoms of which were speedily removed, but the disease returned, and the man died; when the dropsical symptoms were found to be connected with disease of the heart. Dr. S. knows of the lichen being used in a third case, with benefit; but the patient was not under his care, and used other medicines at the same time; therefore, the effects of the remedy might be doubtful in that case. The *Lichen vulgaris* is commonly found in the Deekan, growing on rocks, and the lower branches and denuded roots of the larger trees.—*Transactions of the Medical and Physical Society of Calcutta, Vol. V.*

11. *Remarks on the Medical Properties of the Haritakee, or Myrobalan.* Translated from several Native Medical Works, by RAJAH KALIKISSEN, and read at the Medical Society's Meeting, on the 7th of May, 1831.—The fruit of the *Terminalia chebula*, which is named Haritakee in Bengal, and Myrobalan in English, is much used as a medicine by the natives of India: their modes of preparing and administering this medicine, and its combination with other substances, is varied according to the season of the year in which it is administered, and the effect intended to be produced. Several kinds of the haritakee are employed medicinally; that chiefly in use, is the small black myrobalan, which is called in Bengallee, *Jungeia haritakee*. It is considered a mild purgative, of a moderately warm description, which has some tonic properties, and is often used with great advantage in many chronic complaints. It is said to remove obstructions, improve the general health, and strengthen the digestion; relieving bilious disorders, and hypochondriacal affections, and “increasing the happiness of life.” A regular course of this medicine is prescribed for the purpose of producing the above effects; and it is recommended to be continued for several months. By this account, haritakee seems to produce all the good effects of Mr. Abernethy's blue pill system, besides many others of great benefit; without any of the evil consequences frequently arising from the habitual and protracted use of mercurial preparations. The efficacy of this medicine is so much extolled, that it seems well worthy of a trial on Europeans, whose health has been impaired for a long time; and especially where the principal disorder is referred to weak digestion, torpid bowels, bilious disorder, and general debility; with lowness of spirits, and emaciation. As an aperient, the usual dose is twenty grains of the black myrobalan in powder, with ten grains of black salt, repeated every morning. In protracted chronic diseases, the haritakee should be continued for three months: during the first month, the combination with black salt as above stated; during the second month, twenty grains of haritakee, with ten grains of brown Jagry sugar, are ordered to be taken every day; and for the third month, twenty grains of haritakee, with ten grains of common salt, and ten grains of caraway seeds in powder.—*Ibid.*

PRACTICE OF MEDICINE.

* 12. *Treatment of Gastrodynia* of Dr. GRAVES.—Sept. 1828. Rev. I. xt. 36, rather corpulent, of temperate habits, has suffered for three years from violent attacks of gastrodynia. They last sometimes for forty-eight hours, and during their continuance the agony is described to be so great as to make even

death a desirable boon. The symptoms during an attack are—sensation of straitness in the stomach, with exquisite unintermitting pain, the pain shooting into both hypochondria; dry retching, and rejection of every kind of food and medicines; the countenance, during the attack, pale and expressive of distress. He is not able, (although his sufferings make him very attentive to this point,) to trace any connexion between his complaint and different kinds of food. The attacks usually seize him in bed, sometimes set in at once with great intensity, at other times commence with comparative mildness, progressively increase in intensity, and then disappear gradually in the same manner as they came on. He is rendered somewhat more liable to an attack by confinement of the bowels, and feels relieved after full evacuations; the agony suffered until these are procured is extreme, and even then the relief comes but slowly, and always leaves an internal soreness about the epigastrium, which continues with very little diminution for weeks, and is always proportionate to the previous intensity of the pain. The average frequency of the attack is about one in every two or three months. He resides in the country, but during his present visit to town he has had one of his attacks, which gave me an opportunity of seeing him in it. It came on late in the evening, without any apparently assignable cause, the pain, as he had in his previous account of some of the fits described it, being at first slight, but steadily increasing in intensity, accompanied with great anguish, rejection of every thing from the stomach, and frequent retching; the eyes were watering, countenance pale, and expressive of great suffering. The previous history leading me to view the disease as arising from morbid sensibility of the nerves of the stomach, I had determined, should an opportunity offer while the patient was under my immediate observation, to exhibit opium. I should, perhaps, have observed, that all the preceding attacks had been treated in the country by bleeding or leeching, purgative medicines, and enemata. I gave him fifteen drops of *tinct. opii* in half a glass of tepid water, without an admixture of any of the stimulants or aromatics, as ether, fœtid tincture, &c., which are frequently, but, I believe, injudiciously, in many cases added to opium, under the supposition of increasing its virtues. In a few minutes after taking the draught the stomach became settled, the pain was checked in its progressing intensity, and soon after began to die away, leaving behind it a very trifling soreness, which had nearly quite disappeared on the following morning. This was the first occasion on which he had passed through an attack in this manner.

From the date of the above observations, Sept. 1828 to July, 1831, I had frequent opportunities of seeing this gentleman, and he never, during that space of time, experienced any symptom of relapse. Since July, 1831, I have not seen him, but I may be almost certain, from his silence, that he has continued to enjoy the same immunity up to the present May, 1832.

Concerning alkalies I may remark, that the liquor potassæ causticus, although not so well suited to be used as a domestic medicine, is much preferable to magnesia in relieving acidity and heart-burn.—*London Medical and Surgical Journal*, July, 1832.

13. *Furious Delirium, consequent on the Repercussion of Erysipelas, cured by recalling the Inflammation.*—A man, aged forty-five years, was wounded the 24th November last in the thigh by a stabbing instrument, which penetrated four inches, and grazed the femoral artery without injuring it. M. Blandin found him in the following state: face red, pulse 100, head-ache; the edges of the wound red and painful; he was bled and put on low diet. The next day but one his state was very alarming; face red, pulse 130, look wild and stern; complete loss of intellectual faculties, furious delirium, violent movements of the limbs, &c. On interrogating his parents as to what had passed, M. B. learned that the thigh, in the situation of the wound, had become of a purple red some hours after his visit, with great heat and pain, and that they had applied on the part compresses dipped in cold water and vinegar; that under the

influence of this treatment, the redness, and even the pain, had completely disappeared; and there remained but a slight yellowness in the part, and finally, that the cerebral symptoms came on suddenly afterwards with extreme violence. M. Blandin immediately bled him, applied twelve leeches behind the ears, sinapisms to the feet, a purgative injection, and friction with tartar emetic ointment, to the part which had been the seat of the erysipelas. The fifth day the inflammation returned, and extended over the internal and superior third of the thigh. The cerebral symptoms disappeared, and the patient complained only of head-ache and lassitude. The following days the erysipelas extended, and considerable fever set in; this was combated by frictions with mercurial ointment, and in eight days the patient was completely recovered.—*Archives Générales*.

14. *On the Treatment of Habitual Constipation.* By ROBERT J. GRAVES, M. D. &c.—In many chronic diseases, and in habitual constipation, it is of the greatest consequence to procure daily and regular discharges from the bowels. *Lavements* effect this purpose most conveniently, and possess the advantage of not interfering with or weakening the digestive functions of the stomach and upper portion of the alimentary canal. Many persons, however, particularly females, have an insuperable objection to this method of obtaining relief, and acquire the habit of taking aperient medicines whenever their bowels are confined.

Various causes have combined to render blue pill and calomel almost popular remedies, to which many have recourse when their bowels are irregular, or the stomach out of order. Indeed, it is quite incredible what a number of persons are in the habit of taking these preparations, either by themselves, or combined with other purgatives, whenever, to use the common expression, they feel themselves bilious. This habit sooner or later induces a state of extreme nervous irritability, and the invalid finally becomes a confirmed and unhappy hypochondriac; he is, in fact, slowly poisoned, without the more obvious symptoms of mercurialization being at any time produced.

It is almost unnecessary to observe, that although saline aperients give temporary relief, they afterwards increase the tendency to constipation, and weaken the stomach. The class of purgatives least liable to objection consists of magnesia, aloes, rhubarb, colocynth, &c. for exhibiting which, many well-known and excellent formulæ are used. But even these substances, whose debilitating effects on the stomach are not near so great as that of mercurials and salts, are attended with the disadvantage of being required in larger doses in proportion as the bowels become accustomed to their action. To remedy this evil, Dr. Elliotson has suggested a valuable combination, consisting of compound extract of colocynth with minute doses of croton oil. This I have frequently given with the best effects; but it is liable to a serious objection, for unless the croton oil be perfectly mixed with the mass, some of the pills may be too powerful, while the others are comparatively inert, and consequently the patient is exposed to the danger of hypercatharsis, as I have twice witnessed, although in both cases the medicine had been prepared in the shop of a respectable apothecary. The following combination will, in general, serve to obviate costiveness, without diminishing the appetite, or being attended with the necessity of the dose being increased as the patient becomes accustomed to its use:—R. Electuarii sennæ, ℥i.; Pulv. supertart. potassæ, ℥ss.; Carbonatis ferri, ℥ii.; Syrupi zingiberis, q. s.; Ft. electuarius. For the first few days I generally add about two drachms of sulphur to this electuary; but as soon as its operation has been established, the quantity of sulphur may be diminished one-half, and at the end of a week it may be omitted altogether. The dose must be regulated by its effects, but in general a small tea-spoonful in the middle of the day and at bed-time will be sufficient.

The value of the carbonate of iron as a tonic aperient has not been duly appreciated; I have succeeded in curing, with it alone, a practitioner of emi-

nence in this city, who had been long subject to extreme constipation, and had been reduced to the necessity of taking an enormous dose of purgatives almost every week.

When injections carefully administered with Read's syringe fail to remove obstinate constipation, which they will sometimes, though rarely do, other means must be resorted to. Some practitioners are in the habit of giving one dose of active purgatives after another, adding to the strength of each dose in proportion to the obstinacy of the case. This is an imprudent and hazardous mode of proceeding. In such cases, the stomach will generally be capable of retaining castor oil; and I prefer giving repeated doses of this medicine to any other when the bowels display such an unusual degree of obstinacy, inasmuch as it may be safely accumulated in the alimentary canal, and will in the end procure evacuations without any of the dangers which attend repeated doses of acrid and drastic substances. I generally commence with two ounces, to be repeated every second hour, until the desired effect is produced. I do not recollect who it was first made the important observation, that in obstinate constipation the first dose of castor oil must be large, but when this has acted on the bowels, the dose may be gradually diminished, provided that the medicine is continued every day for some time. I have verified this in private practice, and lately had a patient in the Meath hospital whose bowels had resisted injections and the strongest cathartics. Three ounces of castor oil continued for two days in succession, two ounces on the next day, and one ounce on the fourth, were found quite effectual. In some, the daily dose may be thus gradually diminished to a tea-spoonful at bed-time.

When the tendency to constipation is habitual, and the patient is not effectually relieved by the daily use of injections, and when the peculiar circumstances of the complaint render the administration of aperient medicines by the mouth inadmissible, great advantage may be derived from the application of purgative liniments to the abdomen. The one I have found most useful consists of four parts of castor oil and one part of tincture of jalap. This must be diligently rubbed into the region of the stomach every morning before the patient rises, and it must be done under the bed clothes, least the unpleasant odour should sicken the stomach. I am indebted to a medical friend for this suggestion, which I used with success in the case of a young gentleman, whose state had become almost hopeless.

In constipated habits, I have likewise occasionally derived very remarkable benefit from the use of nitric acid given in sufficient doses. It seems, like the carbonate of iron, to possess the advantage of combining tonic with aperient qualities.

In connexion with this subject, I may remark, that long-continued and repeated attacks of constipation, by enlarging the cæcum and colon, lay the foundation of other diseases. This happens most frequently in females, but is not uncommon among males. In such cases the enlargement of the guts may occasion either of two distinct forms of disease, both attributable to the retention and accumulation of hardened feces. In one form the symptoms are calculated to mislead the medical attendant, by inducing him to believe that his patient is labouring under chronic hepatitis. Pain and tenderness, and in some, hardness, or even a degree of enlargement, are perceptible in the right hypochondrium, while the patient's aspect is bilious, and he not unfrequently complains of pains in the right shoulder. At times he is subject to violent fits of colic, or to what he compares to cramp in the stomach, particularly after the bowels have been confined, after eating vegetables calculated to degenerate flatulence, or after exposure to cold.

In the other form, the general health suffers less; the pain and other local symptoms referred to the right hypochondrium are not complained of, but the patient is occasionally subject, particularly on exposure to the action of the causes before enumerated, to violent attacks of vomiting and pain in the belly, which are accompanied by the characteristic symptoms of intestinal obstruc-

tion. The circumstance that the immediate attack was apparently induced by some palpable and known cause, such as an error in diet, or exposure to cold, may here deceive the practitioner, and cause him to overlook the fecal accumulation, without whose removal recovery cannot take place. I and two other practitioners were several times deceived in the case of a gentleman, of a robust constitution and great strength of body; and the true cause of the sudden and dangerous colics to which he was subject, was not discovered until he happened to mention, that when a young man, he seldom went to stool more than once a week. This led to the suspicion of an enlarged colon, and ever since the attacks have readily yielded to large injections administered by means of a Read's syringe, without which instrument he now never ventures to travel. The practical point that strictly claims our attention is, that the period of life at which the patient becomes subject to these attacks, is often long subsequent to the cessation or diminution of the habit of constipation, and consequently the physician will not perceive the true cause of the complaint unless he questions the patient very accurately.—*Dublin Journal of Medical and Chemical Science.*

15. *On the Exhibition of Opium in Large Doses in certain Diseases.*—The second No. of the *Dublin Journal of Medical and Chemical Science*, contains some interesting remarks by Dr. STOKES on this subject. From the facts he has recorded, he deems the following conclusions justifiable.

1st. That in certain cases of inflammation of serous and mucous membranes, where depletion by blood-letting, or other antiphlogistic measures, are inadmissible, and the system in a state of collapse, the exhibition of opium has a powerful effect in controlling the disease.

2d. That under these circumstances the remedy may be given in very large doses, with great benefit and safety.

3d. That its effect then is to raise the powers of life, and remove the local disease.

4th. That the poisonous effects of opium are rarely observed in these cases; the collapse and debility of the patient appearing to cause a tolerance of the remedy.

5th. The cases in which the utility of this practice has been ascertained are as follows:

Simple peritonitis, in a stage where bleeding cannot be performed. Low puerperal peritonitis. Peritonitis from perforation of the intestine; from the opening of an abscess into the sac; or lastly, after the operation of paracentesis in debilitated subjects. Violent diarrhœa, supervening in exhausted subjects. Phagedenic ulceration of the throat, in similar individuals. And cases of chronic gastritis, and gastro-duodenitis in patients exhausted by the long continuance of the disease.

6th. The cases in which this mode of treatment would be probably useful are, peritonitis from rupture of the bladder, or uterus, traumatic rupture of the intestine, or after the operation for strangulated hernia.

The last observation which I shall make here is, that in most of these cases, particularly in those of diseases of serous membranes, wine was given in conjunction with the opium, and in all the patients were supported by a lightly nutritious diet.

16. *Dropsy cured by Muriate of Gold.*—Dr. WENDT relates in *Rust's Magazin*, B. XXV. eight cases of dropsy, of which seven were cured by the muriate of gold; the eighth case was complicated with consumption. This remedy has been employed for several years in the hospital at Breslau, and with success. Most of the cases were the sequelæ of intermittent fever.

17. *On the Cure of Amenorrhœa by Leeches applied to the Mammæ.* By CHARLES LONDON, M. D. of Leamington Spa.—There are but few of the sympathies which

exist between the remote parts of the body which so decidedly manifest themselves as that between the *uterus* and *mammæ*. It would, therefore, be useless to point out how many physiological and pathological facts demonstrate this in practice. The father of medicine was not ignorant of this great sympathy, and availed himself of it therapeutically; for in floodings he recommends dry cupping to be practised on the breasts, with the view, no doubt, of causing a revulsion, and exciting a new action in the womb.

Reflecting on this principle, it occurred to us, that if an action could be induced in the capillary vessels of the *mammæ*, the womb might in other diseases be made to sympathize with these parts. Leeches seemed to be the most likely means of producing this action, and in a case of *amenorrhœa* of two years standing, two leeches were applied to the lower part of each breast for a month, repeating them on alternate days. In three weeks the *mammæ* swelled to an enormous size, giving a sensation to the patient as if they would burst. About the end of the month menstruation came on, and the young lady is now the mother of two children. Several other cases in which the leeches have been tried, have been followed with the same results, and no medicine has been used excepting an aperient to keep the bowels open.

Although this remedy is submitted to the profession as a very certain means of exciting uterine action in this disease, and is founded both on the principles of physiology and pathology, it is not held up as a specific in all cases of *amenorrhœa*, and is not intended to supersede, but to be combined with, the other auxiliaries in the treatment of that disease. Hence purgatives, local and general, vapour baths, hellebore, and the other remedies which experience has pointed out as useful, should not be neglected. Nor is the author of the present notice aware that this practice did not exist at some previous time in the history of medicine, although, if it did exist, on what grounds it was abandoned, it is difficult to conceive. Leeches were used in medicine long before the Christian era; mention being made of them both by Pliny and Galen.—*Edinburgh Medical and Surgical Journal*, July, 1832.

OPHTHALMOLOGY.

18. *New Method of operating in Ectropion.* By Dr. DIEFFENBACH.—The instruments necessary for this operation, are a small straight scalpel, with a narrow one-edged blade, a double-edged curved scalpel, a pair of forceps, and insect needles.

The operation, (we are detailing that for the lower eyelid,) is commenced by a semilunar cutaneous incision, which is made at some lines distance above the inferior edge of the orbit, directing the instrument from right to left, so that for the right eye the incision is commenced below the external; for the left, below the internal angle of the eyelids, supposing that the operation is performed with the right hand. This incision, which must be parallel with the inferior edge of the orbit, should be about two-thirds of the length of the eyelid, and exactly in the middle. When the incision has extended to the cellular tissue, the skin is to be detached for a certain extent from the tarsus, and the conjunctiva is then to be pierced, and the internal wound enlarged to the same size as the external. The conjunctiva and the tarsus which adheres to it, are then to be drawn through the external opening, a small portion of the conjunctiva being removed, the lips of the external opening are to be brought together, having between them the conjunctiva and the tarsal cartilage. This is to be effected by the finest insect needles, and threads twisted, as in the operation of hare-lip, after which the ends of the needles are to be bent, and cut close on the threads. The operation is the same for the upper eyelid.

Cold applications are made use of, and if necessary the antiphlogistic treat-

ment. The needles may be removed between the third and sixth day. The method of operating is explained by plates.—*London Medical and Surgical Journal*, August, 1832, from *Rust's Magazin*.

19. *On the Efficacy of Strychnine applied to Blistered Surfaces in Amaurosis.*—Dr. STEVENSON states, that he has derived benefit from sprinkling powdered strychnine on blistered surfaces of the temple, in cases of amaurosis of many years duration. Half a grain of strychnine is repeated twice a day, until tremors of the limbs are produced. The same medicine has also been occasionally used with benefit, in a similar manner, in cases of local paralysis, i. e. paralytic affections of a few muscles, without impaired state of the general health. Dr. S. directs the strychnine to be prepared, by boiling nux vomica in water, and evaporating the decoction to the consistence of a syrup; lime is then to be added, that it may unite with the acid, and set the strychnine free, which may be separated from the lime, by means of alcohol, and obtained by evaporation; if the strychnine be required in greater purity, it is to be redissolved in alcohol and crystallized.—*Transactions of the Medical and Physical Society of Calcutta*, Vol. V.

SURGERY.

20. *Case of Chronic Hydrocephalus treated by Puncture.* By R. C. RUSSEL, Esq. of Aberdeen.—Christian Littlejohn, whose age is eight months, was affected with chronic hydrocephalus. Her mother observed a few days after birth a greater separation of the bones of the head than natural, after which its size began to increase very rapidly. Eleven weeks after birth, I was requested to see her along with my friend Mr. Moir, Lecturer on Anatomy in this place. By that time the head had acquired an enormous size, it measured in circumference twenty three inches, and from the meatus of one side to that of the other, across the vertex, fifteen and a half inches. There was a constant rolling of the eyes, and squinting, but there was no unusual dilatation of the pupil, which contracted readily on the application of light. The bowels were irregular, and she was affected with slight startings during sleep. Various methods of treatment had been adopted, viz. compression, blisters, mercury, diuretics, &c. but in spite of these measures the head continued to increase. As the general state of her health appeared good, I resolved upon trying the operation which has been recommended, of gradually discharging the water by puncture. The operation was accordingly performed on the 25th August, six days after my first visit. The instrument which I employed was a trocar such as is used in hydrocele. I introduced it about half an inch in depth on the right side of the anterior fontanelle, and three ounces of serous fluid were discharged through the cannula. A piece of adhesive plaster was placed over the puncture, and a roller applied around the head. She slept well that night, but next day she was slightly feverish, and continued so for two days afterwards, when she appeared as well as before the operation.

On the 4th day of September, the puncture was repeated in the same manner on the opposite side, and five and a half ounces of turbid serum were evacuated, containing several flakes of lymph. No unfavourable symptom followed. On the 15th September, the size of the head appeared much lessened, and was found to have diminished two and a half inches in circumference, and two and a quarter across the vertex. Ossification had made considerable progress. A large opening in the frontal bone, which extended from the bregma to the nose, was completely filled up, while those in other parts were much diminished. In again using the trocar, only an ounce of fluid was discharged. On the 5th of October, I inserted the trocar near to the part I first punctured, and introduced it as far as the meninges, but only half an ounce of fluid passed through the cannula; I therefore reintroduced it, and entered it obliquely, about an inch and

a half in the direction of the ventricle, and upon withdrawing it, nine ounces of serum were discharged in a continued stream. The wound was closed, and a roller applied tightly around the head. Immediately after the water was discharged, the pulse became feeble, and she was faint and weak, but during the evening she fell asleep, and awoke an hour afterwards apparently much refreshed. To my great surprise, not one unfavourable symptom followed. The pulse indeed became more regular than it had hitherto been, the startings during sleep were not so frequent, and she appeared in other respects better, with the exception of her bowels, which continued to discharge stools of a dark green colour. She continued to improve for nearly three weeks afterwards, when her former symptoms gradually returned, and an obscure fluctuation could be perceived by pressing with the fingers above the anterior bregma. Small doses of calomel were administered till the mouth was affected, which shortly produced an absorption of the fluid, and a removal of all the hydrocephalic symptoms. Since then, she has had no relapse, and has enjoyed almost uninterrupted good health. She is a stout and lusty child, and her size uncommonly large for her age. The bones of her head are now complete, excepting the anterior opening, which is closing. 'The size of the head is less by four inches in circumference, and two and a half across the vertex than it was previously to the first operation. With the exception of Dr. Conquest's two cases, I am not acquainted with another in which the ventricle has been punctured for the relief of water in the head. In the cases of Rossi, and Dr. Vose, the water between the membranes only was evacuated. An opinion is entertained by several, that this operation is not only a very dangerous but an extremely doubtful one. I trust, however, that the result of these cases, will prove that such fears are in a great measure groundless, and that, under favourable circumstances, the chance of cure is such as to justify its performance.—*Edinburgh Medical and Surgical Journal*, July, 1832.

21. M. DUPUYTREN on the Consolidation of Fractures of the Neck of the Femur within the Capsule.—Sir Astley Cooper says, "that in all cases of transverse fracture of the neck of the femur within the capsule, which he has had occasion to examine, there never was seen an osseous callus." "The dissections which I have made," adds this illustrious surgeon, "have convinced me that the fragments of the fracture of the neck of the femur, when this happens within the capsular ligament, did not ever unite by an osseous callus; the reünion was made by a ligamentous substance only, as in fracture of the patella." Persuaded that the consolidation of the neck of the femur is impossible, Sir Astley has made experiments on living animals, which have confirmed him in his opinion. The English surgeons have equally adopted the opinion of their co-patriot. Baron Dupuytren, on the contrary, is of opinion that this consolidation may take place. A considerable quantity of anatomical pieces, he says, "representing intra-capsular fractures of the femur, well consolidated, are to be found in the different museums. Those contained in the cabinets of the faculty of Paris, and of the amphitheatre of the Hôtel-Dieu, really prove that this consolidation, with or without deformity, is real. Sir Astley Cooper has probably seen these fractures of the neck of the femur, which had not been cured, or which have been maltreated, or which have been partial. This is the only manner to explain the opinion of the English surgeon, which appears to us to be evidently erroneous. The examination of these pieces of pathological anatomy, is eminently proper to convince us of the reality of the consolidation of this intra-capsular fracture, does not appear, nevertheless, to have produced this effect on other English surgeons who have visited the museum of our faculty. Mr. Cross is said to have considered with care the pathological pieces preserved in the school of medicine of Paris, and not one among them did appear to him to be of a nature to prove that osseous reünion had ever happened, when the head was completely separated from the capsular ligament, and when it did not communicate with the rest of the body by the round ligament.

"When any one inspects the specimens shown in the Hôtel-Dieu, he must be convinced of the consolidation. For myself, I am firmly convinced of it, notwithstanding the contrary opinions of the English surgeons."

"Let us now consider the theoretical and practical reasons in favour and against the possibility of consolidation of intra-capsular fracture of the neck of the femur.

"It is said that the superior fragment contains very few vessels, that it forms a true foreign body in the articulation. This assertion is untrue; the head of the femur receives evidently vessels from the cotyloid cavity by means of the round ligament. These vessels, without being very numerous or very large, can nevertheless suffice for the nutrition of the superior fragment. Again; the synovial membrane surrounds the cartilage, and forming at its base a little *cul-de-sac*, which possesses distinct portions of cellular tissue, and in which will be found a number of vessels. As to the inferior fragment, it receives a great number, by the principal nutrient artery of the bone, which enters at its posterior part, and which forms in the whole extent of the bone numerous ramifications which nourish it. Finally, by the arteries which surround it, by those which appear in the digital cavity of the great trochanter, and by all those which penetrate in the spongy tissue of the bone, and which sometimes run over its surface. The fibrous tissue, which envelopes the neck of the femur, contains a great quantity.

"It is therefore evident that the inferior fragment receives many more vessels than the superior one, whose vitality is less active, more languid; and that for effecting the consolidation, the inferior fragment which enjoys a free exercise of all these vital properties, performs almost alone the consolidation; but it is not less true, that the superior fragment contributes to the process. The assertion relative to the absence or paucity of the vessels destined to nourish the fragments, is therefore valueless; the anatomical examination of the parts completely refutes it.

"A cause which has been considered almost insurmountable to the reünion of the fragments of the neck of the femur, is the absence of periosteum about this part of the bone. Here is a grand error, the neck of the femur possesses a periosteum, thin, no doubt, but still apparent, and if not so capable of nourishing as that of other bones, nevertheless it is real. This thinness is a difficulty, and by no means an insurmountable obstacle to consolidation.

"Others have said that the synovia continually bathes the fragments, and renders consolidation impossible. This reason would be good if the same anatomical disposition which is seen in various points of the osseous system prevented in any way the formation of callus. For no one is ignorant that fractures which penetrate into the joints consolidate very well, and the same thing happens to the olecranon and patella; in these cases it cannot be contested but the synovia bathes the fragments. Every one admits the consolidation of the olecranon, but some contest that of the patella. I shall relate a fact, which proves this beyond all doubt. A man fell upon both his knees, and fractured his patellæ, one longitudinally and the other transversely; the femur was cured without any deformity; the latter separated for some lines. The man died some years afterwards, when the longitudinal fracture could scarcely be discovered, except by a slight inequality in the ridge of the fracture. The other was all consolidated. These cases prove that fragments, bathed with synovia, may be perfectly consolidated. It is not the presence of synovia that offers an obstacle to that of the neck of the femur. The true cause which impedes, or renders very difficult, the exact and solid consolidation, and above all the great deformity, is the displacement of the fragments, their want of apposition, whether the fracture is within or without the capsular ligament."

22. *Case of Chronic Hydrocephalus cured by Puncture.* By PROFESSOR GRAEFE.
—A boy, whose head from its birth had been preternaturally large, but who was

otherwise healthy, was, at four months old, admitted into the University Hospital at Berlin: it was then pale without being emaciated, and well made. The head, however, showed symptoms of chronic hydrocephalus; the face was small in comparison to the cranium; the hair was fine, light-coloured, and very thin; the fontanelles were widely open, and the sutures unclosed; the bones of the skull mobile, thin, and little advanced in their ossification: the greatest circumference of the head was eighteen inches and a quarter: fluctuation could be perceived every where, and especially at the anterior and posterior fontanelles; when pressure upon one of which was made, the other presented a hard translucent tumour. Not any of the medical means employed had the least salutary effect, and hence M. Græfe determined to try whether puncture would afford relief.

Having compressed the great fontanel so as to determine the fluid towards the small one, he introduced a moderately sized cataract needle, at first vertically into the fontanel close to the side of the bone, and then, giving it an oblique direction, carried it onwards about a third of an inch. The liquid, which was viscid, dropped out but slowly: the operator, therefore, withdrew the cataract needle, and introduced in the same way a fine trocar, and, as soon as the cannula was opened, a transparent yellowish-brown fluid gushed out in a free stream. In about half a minute the cannula was closed, with the intention of subsequently reopening it after the lapse of a few minutes, which was done several times, the skull being, during the whole period, gently compressed by the hands of an assistant applied on either side. When twelve drachms of the fluid were discharged, the infant's eyes became suddenly dull, the pupil contracted, the countenance pale and altered, and the action of the heart and the pulse more feeble. The cannula then was immediately withdrawn, the wound closed, and the head compressed by the application of strips of adhesive plaster.

These symptoms did not disappear for several hours, notwithstanding the exhibition of stimulating medicines, which were prescribed; and the child remained restless, slept little for the two following nights, cried much, and took the breast but seldom.

The same symptoms occurred after each subsequent operation, but it was found that the child became completely restored in from about ten or fourteen days. At first only about twelve drachms were evacuated after each puncture, subsequently twenty were discharged. Between the earlier times of operating, the little patient took, morning and evening, the eighth of a grain of calomel, and the sixteenth of a grain of foxglove: but this powder causing nausea, it was changed for two or three grains of calomel with magnesia, to be taken twice a day, two or three times a week, the head being bathed assiduously with squill, vinegar and water, just warm; for after cold applications, which were tried several times, the infant was always uneasy, pale, and faint, insomuch that convulsions were feared. The head diminished in diameter two or even three lines after each operation, and by degrees the dimensions of the skull were reduced to a conformity with the face and the rest of the body. The fluctuation, and the mobility of the cranial bones diminished; the sutures closed, and the general state of the patient was improved. The punctures were repeated eleven times at the following periods during the year 1829: viz. the 8th, 13th, and 23d of January; 19th of February; 5th and 19th of March; 19th and 27th of April; 5th and 17th of May; and 23d of June. The liquid evacuated became thicker and more coagulated towards the end. After the last operation on the 23d June, no further fluctuation was perceived; the little fontanel and all the sutures were closed, the great fontanel alone remaining slightly open. The child grew, and even after the third operation it had already a better appearance, and after the ninth it began to articulate certain words, and also to walk: at ten months old it ran alone, and spoke as well as children of that age usually do. At the end of June, its head measured in the greatest circumference eighteen inches and three-quarters.

On the 26th of November, 1830, the child being then two years and a half old, was alive and well, and was presented to the Society of Medicine at Berlin.—*London Medical and Physical Journal, from Græfe and Wallther's Journal, des Chirurgie, &c. Bd. 15.*

23. *Case of Hydro-Sarcocele in which there was great difficulty of Diagnosis.* By Baron DUFUYTREN.—A short time since a physician of the marine came to consult me for an affection of the left testicle; it had been considered as hydro-sarcocele by many gentlemen who had examined it. During infancy the left testicle did not descend into the scrotum; a tumour of a variable size appeared frequently in the course of the spermatic cord, descended more or less, sometimes even into the scrotum, and then gradually reascending, disappeared again in the inguinal ring; it finally fixed itself out of the abdomen. The existence of hernia was undoubtedly credited, for from his childhood, he has constantly worn a truss. This fact must be attended to, as it must have exercised considerable influence on the modifications which took place later in those organs; for we may take it as a rule, that whenever the truss is not useful, it is almost always hurtful; it exercises a constant, sustained pressure, the effects of which are almost always injurious; it has sometimes caused swellings of a scirrhus nature. However, for several years the patient, whose age is now thirty-two, has ceased wearing it. A circumstance to which attention should also be directed is, that the tumour often presented very considerable variations in its size. During a voyage for a year which he had been obliged to make, it increased considerably. On his return fluctuation was perceived at the anterior and inferior part; above and behind this fluctuation, a hard body was felt. When I saw the patient for the first time, I thought, in fact, that there was a collection of fluid, but it was difficult, from the history, to decide what the hard body was which I have just mentioned; I was inclined to consider it was a swelling caused by an adherent hernia; I contented myself with advising repose, baths, and topical emollients, after which I endeavoured to reduce it, but unavailingly.

The patient, whose affairs required him to undertake another long voyage, was determined to be rid of his disease at all risks. The position was a very embarrassing one to the operator; there was, in truth, a collection of fluid, but nothing else could be ascertained. In the first place it is often very difficult to distinguish hydrocele, with a cartilaginous thickening of the tunica vaginalis, from sarcocele; but besides, it was necessary to ascertain whether the hydrocele was the only disease, or whether it were accompanied by sarcocele, swelling of the testicle, or hernia, and, if the latter, whether the hernia had or had not contracted adhesions; for one or other of these hypotheses might be true. Every kind of these complications are met with, and according to them was my conduct to be regulated. I at first intended to make an explorative puncture; but it was then requisite to determine how it should be done. The use of the trocar, innocuous and very proper in cases of simple hydrocele, would prove very dangerous if the tumour were formed by an enlarged testicle, without degenerescence, or by the presence of the intestine; either of these organs might be wounded. On the other hand, if there were sarcocele the puncture would be useless.

These considerations determined me to open it with a bistoury; an incision, about an inch long, was made in the integuments on the lower part, prolonged a little backwards, and the parts carefully divided until I came to the sac containing the liquid, which was of a bluish colour, and elastic. Having pierced it with the point of the bistoury, a liquid escaped resembling that of pure hydrocele. Being desirous of preventing its infiltration in the cellular tissue, I enlarged the incision, when the quantity which escaped amounted to about eight or ten ounces. The tumour lost only two-thirds of its volume; and we might then see very evidently that its remains, the hard body already spoken of, was the testicle itself. But in what state was it? That was an important

question to determine. Its swelling might depend on a venereal, scrofulous, or external cause. On questioning the patient, it appeared that he had only had a running for about five or six days; on the other hand, although there were a few indications of scrofula about him, they were not sufficiently marked to warrant me in concluding it to be of strumous origin; the patient had a good constitution, and had always enjoyed good health. Every thing then led us to believe that this tumefaction was the result of the compression exerted on the testicle for so many years by the truss employed to keep up this herniary tumour. Supposing it to be of venereal origin, should I stop the operation there, reunite the wound, and endeavour to obtain its resolution by anti-syphilitic measures? It may easily be conceived, that my decision in this respect would depend on the more or less positive knowledge that might be acquired relative to the state of the organ, whilst the appreciation of the circumstances just enumerated could serve us only in calculating the chances of amputation.

Having carefully examined the testicle, I found its surface very unequal; it was hard and almost indolent; this hardness was especially remarkable in the epididymis, which has acquired a very considerable size. There were therefore very good reasons to believe in the degenerescence of the greater part of the organ, and I therefore determined to remove it. But being previously desirous of ascertaining the state of the upper part of the spermatic cord, which I found to be healthy, and of the inguinal ring, I reached the latter without difficulty, and found it freely open. I could then readily conceive how the volume of the tumour had varied so considerably, as I believed to be dependent on the protrusion and spontaneous reduction of an intestine. But how was it that the tumour containing the liquid was not returned into the abdomen during the efforts made in such a state of the ring? This was to be explained by the appearance of the epididymis, which was placed against the opening of the ring, and completely closed it up. It is known that in dogs a fold of the peritoneum, placed there like a sucker, prevents the return of an injection into the tunica vaginalis. In this patient, this abnormal condition of the epididymis performed the natural function of the peritoneum in dogs.

In consequence of this particular condition of the ring, the operation might be followed by two accidents equally unpleasant. On the one hand, a portion of intestine might be protruded, and fix itself in the wound, as sometimes happens in the operation for strangulated hernia; on the other hand, if hæmorrhage were to supervene, the blood, effusing itself into the peritoneum, would cause violent inflammation of that membrane. To prevent this the vessels of the cord were tied with great care, as were also the vessels of the integuments.

Let me now recapitulate the circumstances of this interesting case. The tumour consisted of a collection of fluid, the abnormal size of the testicle, and, accidentally, by an intestinal hernia. This collection of fluid, in all about eight or ten ounces, was the product of the morbid secretion of the tunica vaginalis, and constituted a real hydrocele. Although the inguinal ring was widely open, the communication between the tunica vaginalis and the cavity of the peritoneum not being free, which was dependent on a particular disposition of the lower part of this canal, it had not been possible to reduce the sac containing the liquid. In regard to the determination which I formed of removing the testicle, I believe it was the wisest. The operation, it is true, was painful, long, and difficult; but that is nothing to be compared with the accidents which might occur from the ulterior progress of the disease, or from any other operation. However, the pathological examination of the testicle itself will decide whether I have acted right or wrong. It has more than three times its natural size; divided with a bistoury, it shows carcinomatous appearances of the first degree, that is, without degeneration or ramollissement. This is a happy circumstance, as it affords a greater chance for the ultimate cure of the patient. The epididymis, which is at least four times its natural size, is in the same state. The general constitution of the individual, the integrity of the cord, and the presumed

nature of the cause of this affection, lead me to suppose that the cure will be radical.—*London Medical and Surgical Journal, July, 1832.*

24. *On the Employment of Force for the Reduction of Hernia.*—There is reason to believe that some practitioners are not sufficiently alive to the danger of employing force for the reduction of hernia—we would specially urge upon such, the following case of strangulated entero-epiplocele, in which the intestine burst by the taxis, with remarks on the subject. We extract them from the interesting volume of “Clinical Reports of the Surgical Practice of the Glasgow Royal Infirmary, by JOHN MACFARLANE, M. D.”

“J. P. æt. 39, admitted 19th February, 1827, at 7 P. M. He had been subject, for twenty years, to a reducible inguinal rupture of the left side; and, during the last two years, a small portion of it remained irreducible, and prevented him from wearing a truss. The symptoms of strangulation had existed for ten hours; and during a considerable part of that time, a surgeon had made powerful and continued efforts to return the displaced parts. These produced at first a good deal of pain in the tumour; which, however, along with the vomiting, ceased for several hours, after he felt as if something had been pushed into the abdomen.

“A consultation was immediately called, when, after one of my colleagues had employed the taxis rather forcibly for about ten minutes, it was agreed to apply cold to the tumour, and attempt to evacuate the bowels by a colocynch enema. I had not an opportunity of seeing this patient for more than an hour after. The tumour was then about the size of the fist—had a pyriform shape, an irregular surface, and was rather firm and doughy anteriorly, but smooth and elastic posteriorly—the outer part being apparently omentum, behind which a fold of intestine was probably situated. The lower part of the scrotum was as large as a child’s head, the swelling being chiefly confined to the left side. It was tense, smooth, and of a livid colour. The integuments were considerably thickened; and they crackled under the fingers, when firm pressure was applied, similar to what is observed from the effusion of fibrine around a sprained joint. There was also obscure fluctuation, apparently from a collection of fluid in the cavity of the scrotum. These appearances evidently depended on the effusion of blood, both into the integuments and the interior of the scrotum, which was to be attributed to the forcible pressure employed previous to his admission. His pulse was one hundred in the minute, the respiration slightly hurried, and the bowels obstructed; but there was no anxiety of countenance, and only slight pain in the belly, the vomiting had ceased, and, altogether, the symptoms were so mild that an operation was not immediately called for; yet it will be afterwards seen, that before this period the injury was done to the bowel which led to a fatal result.

“From the too forcible endeavours previously made to reduce the hernia, and from the great swelling of the scrotum, further force could not be directly or usefully applied. I considered it, therefore, highly improper to renew the taxis, which could only tend to an increase of the local injury, and an aggravation of all the symptoms. At 1 A. M. I found him much worse; no alvine evacuation had been procured; the abdominal pain was acute and diffused; he vomited every ten minutes; his pulse was 140, small and sharp; his breathing hurried, and his countenance sunk and anxious. The scrotum was now as large as a man’s head, the purple discoloration having extended over its whole surface, along the perinæum to the anus, and over the right groin, in the direction of Poupart’s ligament, to near the anterior spine of the ilium; the only unaffected part being about an inch of the integuments over the neck of the hernial tumour. It was nearly 4 o’clock before I could obtain the attendance of one of my colleagues, to sanction an operation and assist in its performance.

“An incision, two and a half inches in length, was made over the neck of the tumour. When the sac was opened, fully a pound and a half of dark-coloured blood escaped; a considerable quantity of which was pressed up from the de-

pending part of the scrotum. The hernial tumour consisted of a large piece of omentum, which was covered with coagulated blood, and of nearly two feet of intestine. The omentum was contused and lacerated, and the protruded gut, which was afterwards found to be the ileon, was almost wholly separated from the mesentery. It contained several rents, which passed in a longitudinal direction; and into each of these openings two or three fingers could be introduced. There had been no escape of feculent matter, but the gut was flaccid, and of a deep purple colour; the discoloration depending not on gangrene, but on the extravasation of blood into the cavity of the bowel, and between its coats.

"Two strictures, about an inch separate, one at the outer, and the other at the inner ring, were divided. I then attempted to return the uninjured parts of the bowel into the cavity of the abdomen; but after several attempts, this was found impracticable. The impediment did not arise from the smallness of the hernial aperture, or from the presence of adhesions; but in consequence of the empty and relaxed state of the bowel, and the great distention of the parts within the abdomen, I found that, although a small portion was pushed up before the finger, it was impossible to prevent it from being instantly reprotuded.* From the dreadful condition of the parts in this unfortunate patient, I had no alternative, but either to allow the bowel to remain in the sac, covering it with a poultice or other emollient application, or to excise it. Had the patient survived the effects of the disease and operation, I have no doubt, from the great injury which the bowel had sustained, and from the extensive destruction of its mesenteric attachments, that it would soon have become gangrenous, which termination would probably have been accelerated by the constant irritation to which so large a piece of intestine must have been exposed in an open wound. The only prospect of benefit from treatment, seemed to consist in procuring, as speedily as possible, a free feculent discharge, through an artificial anus; and as this could be effectually obtained only by dividing the gut as it emerged from the inguinal canal, I proceeded to excise the bowel; an operation, it must be acknowledged, of the most formidable kind, and only warrantable under the desperate circumstances I have attempted to describe.

"From the vascular state of the small portion of the mesentery attached to the bowel, I found it necessary to pass a ligature around it to prevent hæmorrhage; the gut was then divided in two places, and removed. Both ends of the bowel were secured in the wound; they did not collapse, but retained their natural calibre from thickening of the coats by previous inflammation. A piece of omentum, nearly the size of the fist, was also removed; after which, two stitches were inserted into the lower half of the wound, and simple dressing applied.

"The patient bore this painful operation with remarkable firmness; but when it was finished, he appeared much exhausted, and his pulse was rapid and tremulous. In order to procure alvine evacuations, he was ordered a compound colocynth pill every third hour, and an injection through the upper end of the divided bowel. No feculent discharge was procured; his strength decreased rapidly; he vomited almost incessantly; his belly became tympanitic; and he died at 11 o'clock, about seven hours after the operation.

"It is impossible to furnish a more useful or impressive commentary on the danger of employing force in the reduction of a hernia, than by the case now detailed. The disease was of twenty years standing; the intestine was free, although the omentum was adhering to the sac; the inguinal ring was large; and every thing was in the most favourable state for the successful use of the taxis; nevertheless, it was productive, and that in the hands of a well-informed surgeon, of the most disastrous consequences; the omentum, intestine and mesentery were torn, and an immense effusion of blood produced.

* "Boyer gives a case which occurred to Petit. Although the stricture was divided, and the gut found to be free of adhesions, it could not be returned. He was advised to cut off the part, but he allowed it to remain in the wound, and covered it with pledgets of linen; the greater part of it returned spontaneously into the abdomen, the wound healed, and a cure was accomplished."—*Traité des Malad. Chir.* Tom. viii. p. 126.

"Few surgeons will be inclined to deny the propriety of employing the taxis in the reduction of a strangulated hernia; but there exists great difference of opinion as to the cases in which it may be advantageously had recourse to, the extent to which it should be carried, and the force we are warranted in employing, before an operation is determined on. I must object, in the first place, to the indiscriminate use of force in every case, without properly regarding the state of the tumour, the urgency of the symptoms, or the duration of the disease. It must indeed be obvious, that if the strangulation is of long continuance, and the hernia highly inflamed, the taxis, if tried at all, must be employed for a short time only, and with the greatest caution, otherwise all the symptoms will be materially aggravated, and destructive consequences produced. That such consequences have resulted from even a moderate use of force, I have had repeated opportunities of observing; and I feel satisfied that, in many similar cases, the safest practice will be found to consist in the immediate performance of the operation. It is this promptitude in the use of the knife, and a more gentle employment of the taxis, which render the operations of the continental surgeons more generally successful than are those of the British. It is impossible to give any correct directions as to the quantum of force to be employed in the reduction of these tumours; but, if moderate and steady pressure does not succeed, it would be in the highest degree dangerous and reprehensible, were we to adopt the rude, powerful, and unscientific efforts, which some recommend and practise. It is not by force, but by tact, that we shall most generally succeed in the replacement of a hernia. I have reduced many hernial tumours in a state of strangulation, by cautious and steady manipulation, proper position, &c.; but I have never employed much force, and, I hope, I shall never be tempted to increase it.

"It must be acknowledged, however, that, in the hands of my friend, Mr. McLeod, the taxis has been eminently successful; and, I have reason to believe, that, since the publication of his paper on this subject, in No. XII. of the Glasgow Medical Journal, the practice has, on the faith of his testimony, been tried by a good many surgeons in this neighbourhood. That this treatment has been adopted, without any bad consequences resulting from it, I am prepared to admit. The coats of a healthy intestine are, from their toughness and elasticity, capable of resisting a good deal of force, when it is cautiously and steadily applied; but it requires no stretch of imagination to suppose that they may give way, and be torn under violent or undue pressure. This unfortunate result may attend the manual efforts of any surgeon, however deficient he may be in physical power; but the danger is mightily increased, when we find those members of our profession, distinguished for their muscular power, making every effort to reduce a strangulated bowel, especially when aided by two or three able-bodied assistants. Can any rupture occur, for the replacement of which such combined and concentrated efforts are at all justifiable? or is it for a moment to be supposed, that we can, while thus assisted, regulate so safely and correctly, as circumstances may demand, the exact force requisite for returning the displaced parts?

"Sir A. Cooper has met with several cases, in which the intestine was ruptured by violent efforts at reduction.* Pelletan has frequently discovered, from the same cause, clots of blood in the sac, with an ecchymosed state of the intestine and omentum.† Mr. Dewar, of Dunfermline, details a case in which, on opening the sac, feculent fluid was discharged through a ragged opening in the gut. The patient was a female, and the hernia crural. The injury was produced by a surgeon, who opposed an operation, but had 'patiently pressed the rupture' for some time.‡ I have examined the preparation of a burst intestine, in the museum belonging to the Portland Street Medical School. The injury was produced by a surgeon in town, when attempting to return the

* Lectures by Tyrrell, vol. iii. p. 27.
Edinburgh Medical and Surgical Journal, No. 96.

† Clinique Chirurgic, tom. iii. p. 381.

bowel which was strangulated. I was present in autumn last, when two respectable surgeons of this place were attempting to reduce a large scrotal rupture, which had been in a state of strangulation for about four hours. While the patient lay in a hot bath, the neck of the tumour was managed by the one surgeon, while the other grasped the lower part of it. After continued and rather powerful efforts, the hernia was reduced; but the patient died in a few hours. On dissection, the intestine was found ruptured, and the peritoneum, in several places, peeled from its surface.

"It sometimes happens in old herniæ, that the gut, from frequent protrusion, and the pressure to which it is subjected by the opening in the abdominal parietes, becomes diseased. Whether this morbid change consists in a thickening, or attenuation of the bowel, it is generally accompanied by a softening of all the textures of that portion of the tube implicated in the hernia. In such a combination, it is evident that the taxis, unless used with the utmost caution, will probably produce fatal effects; and, as we have no means of ascertaining the existence of this disorganization during the patient's life, it should form an additional reason against the employment of force in the reduction of the tumour.

"In May, 1827, when walking along one of the public streets of this city, I was requested by a surgeon to accompany him into his shop, and examine a poor woman who had fainted a few minutes after the reduction of a strangulated crural hernia on the right side, which had annoyed her for more than twenty years. The tumour had been in a state of strangulation for about eight hours; but the symptoms were not urgent. After a gentle use of the taxis for five minutes, the hernia went up with the usual noise, and was almost immediately followed by syncope. On examination, I found her skin covered with cold perspiration; the pulse rapid and feeble; and she complained of acute pain in the right inguinal region. She was immediately carried home, but continued to get worse. The pain became diffused; vomiting and hiccup occurred; the belly was tympanitic; and, without reaction taking place, she died in less than seven hours. I was present at the dissection, and found a lacerated opening in the middle of the ileon, which could admit three fingers. The intestine was softened and thickened, but not in a state of gangrene; and through this preternatural opening, the contents of the alimentary canal had escaped and excited peritonitis."

MIDWIFERY.

25. *Observations on the spontaneous Amputation of the Limbs of the Fœtus in Utero, with an Attempt to explain the occasional Cause of its Production.* By W. F. MONTGOMERY, M. D., M. R. I. A., Professor of Midwifery to the King and Queen's College of Physicians in Ireland.—Several of the writers who have expressly treated of the pathology of the fœtus, in their enumeration of the accidents to which it is liable during its uterine existence, mention the fact of the occasional separation of portions of the limbs: and especially Desormeaux, in his elaborate and able article on the "œuf humain" speaks of it as an instance of spontaneous amputation, which he attributes to the effect of inflammation and gangrene.

But none of these authors appears to have witnessed or examined any case of the kind themselves, nor can I find a satisfactory reference to any such case in any author within my reach, except those which are now to be noticed.

In the London Medical and Physical Journal, vol. liv. p. 38, Mr. Watkinson relates the following case. Being called to a lady, aged twenty, in her first labour, which was natural and easy; when the child was expelled, "he discovered that the left foot had been amputated a little above the ankle, and the part nearly, but not quite healed."

The child was alive, and gasped for twenty minutes, when it expired. The

mother had only gone seven months. On examination after the birth, the foot was found in the vagina, and it also was nearly healed. There did not appear to have been any hæmorrhage from the limb; the separated foot was much smaller than the other, which was rather turned inward; it showed no mark of putrefaction, but appeared to be in a state of perfect preservation. The mother said she had not been frightened, nor had any unpleasant circumstances occurred in her family to give her the least uneasiness; her circumstances were sufficiently easy to render unnecessary any over-exertion on her part.

The parts here described were examined by the editors of the Journal, and a sketch of them is subjoined to the description.

M. Chaussier examined two cases in which separation of a part of the forearm had taken place before birth; and in a third case of the same kind, he found the separated portion of the arm and the hand lying in the membranes, and, as in Mr. Watkinson's case, the stump was healed.

Chaussier also attributes the accident to gangrene, as the cause which would most obviously account for its production; but it does not appear from his account, that there were present any of the pathological evidences of that condition; and indeed, as a general explanation, this appears hardly admissible when we recollect that, in the first case related, the child was born alive, and neither the stump nor the part amputated showed any symptom of disorganization or disease, nor was the latter even discoloured.

Without pretending to discuss the different causes likely or unlikely to produce so remarkable a change, I shall proceed at once to describe the case which occurred to myself, and which appears to me to offer one explanation at least of the phenomenon under consideration.

About three years since, I was suddenly called on to see a patient who was miscarrying in the fifth month, with violent hæmorrhage. On examination, I found the fœtus partly expelled from the uterus, and lying in the vagina, from whence I readily removed it by slight pressure with my finger; the cord was broken off, at about an inch and a half from the umbilicus; the secundines were retained for three or four days, without any return of hæmorrhage, and were then expelled whilst the patient was evacuating the bowels. She recovered well.

Observing the unusual figure of the head, I laid by the fœtus for examination, and having placed it in clean water for the purpose, I was greatly struck with the appearances it presented.

The shape of the head was altogether deformed and monstrous, and the brain, which at the left side was covered only by the common integument towered upwards like a helmet over the head; but the circumstance which most forcibly attracted my attention was the appearance of distinct ligaments on the limbs; and examining closely, I found them in the following condition:—

There were distinct threads of, I presume, organized lymph passing from both hands to the legs; at one end these threads, which very much resembled the kind of thread called ardis, had formed a complete ligature round the middle of each hand, causing a distinct depression where it passed, the part of the hand below it being almost completely undeveloped; from the hands these threads descended, at both sides towards the legs, which were crossed, and surrounding them in this position, just above the ankles, so tightly, that fully two-thirds of their whole thickness were thereby divided, without, however, any breach of the skin having taken place, nor was there the slightest appearance of disorganization or discoloration of any of the parts, but as were the hands, the feet also were imperfectly formed, totally undeveloped, and of course misshapen. These circumstances are very accurately represented in the drawing executed by my zealous and accomplished pupil, Mr. J. Bullar, and the fœtus itself is preserved among the preparations in my museum. The mother was about twenty-five years of age, and at the time labouring under fever, but had been previously in perfectly good health, and had not met with any accident or circumstances of either bodily injury or mental agitation.

From the condition of the limbs thus produced, and the impossibility of the

parts below the ligatures continuing their growth under such circumstances, it seems exceedingly probable that had the child continued to live and grow, the parts of the legs below the ligatures would have been separated, and thus undergone spontaneous amputation. The formation of these threads, and particularly their application so as to stricture the limbs, are circumstances in explanation of which I do not feel prepared even to hazard a conjecture, nor can I find in the authors who have treated of such subjects more than a mere allusion in some of them to the fact, that the foetal limbs are occasionally separated, and by all it seems taken for granted that mortification is the agent of the change.

The only passage which I can find apparently relating to the state of the parts just now described, is in the *Elementa Physiologiae* of Haller, t. 8, p. 135; it is as follows: "Huc faciunt alius fetus, cui artus retracti, compressi, ligamenta stricta, &c.," the last phenomenon he quotes from one of Ræderer's works, which I regret I cannot find in any of our libraries, and am therefore unable to ascertain how far it might bear upon or illustrate the fact before us. It does not appear from any passage in his writings, that Haller was himself aware of any such case from personal observation. He gives, indeed, a long list of extraordinary mutilations in the fœtus, attributed by authors to the effects of mental emotions in the mother, or of accidents sustained by her; but he immediately pronounces most of them to be "adeo fabulosa ut fidem auferant," and he obviously considers such cases as the result of imperfect development or of malformation, and not of separation or removal of the parts already formed, objecting to the authors who have furnished such descriptions, that they cannot even quote one instance in which "manus truncata, aliussve artus in membranis fetus seorsim a corpore repertus sit," two such instances at least have, in the foregoing remarks, been laid before the reader, and with regard to the case which I have added, I will only venture to say, that it appears to me to afford at least one solution of so mysterious an occurrence, and should it appear, as of course it must, that the explanation thus supplied is so far unsatisfactory, that it is itself the result of a process equally inexplicable, it should be recollected, that very many indeed, if not all the physiological and pathological results which we witness, are, as to the mode of their production, enveloped in a similar cloud of obscurity: I think the fact which I have here added, leads us at least one link further in the chain of causes and effects, and if so, even though the advance should be but of one step on the road to knowledge—"Est quodam prodire tenus si non datur ultra."—*Dublin Journal of Medical and Chemical Science*.

26. *Case of Contraction of the Vagina*. By DAVID D. DAVIS, M. D.—The subject of this case was a lady, thirty-nine years of age, whose spine was considerably distorted by an injury which she accidentally sustained during her infancy. When she had been in labour only for two or three hours, she was advised by her monthly nurse, who probably anticipated more than ordinary difficulty, to send for her medical attendant. On the author's arrival, he found the orifice of the uterus very amply dilated, NEARLY OBLITERATED, and the foetal head presenting favourably. In ascertaining these facts, however, he encountered some difficulty in carrying his finger through the middle of the vagina, where he found it contracted into a very narrow diameter, and presenting such a feel as it might have been expected to present, if it had been bound by a ligature coiled round it on the outside. It moreover felt firm, thick, and rigid. The mother of the patient being in attendance, reported that her daughter had always menstruated regularly and well, and that she had never been the subject of any known disorder of her genital organs. The affected part gave no evidence of its ever having been the subject of cicatrization. Time and patience, therefore, presented themselves as the principal remedies. The cavity of the pelvis was sufficiently ample. The labour pains became very active in the course even of a few hours, and ultimately exceedingly urgent, accompanied by a tempestuous excitement of the heart and arteries. The patient was bled

freely and repeatedly, and the hand was as much used to promote dilatation as was deemed consistent with the soundness and safety of the part to be dilated. She was delivered of a still-born child in about FIFTEEN HOURS after the commencement of the labour. She recovered slowly but perfectly. She sustained no retention of urine, nor purulent discharges during her convalescence. The loss of an heir to a good property, as it might well be supposed, was not a little regretted. But the disappointment was forgotten, and the loss doubly repaired by the subsequent birth of two living children, both sons.

In some cases of contracted vagina a considerable, and even sudden dilatation occurs during labour.—*Obstetric Medicine.*

27. *Rupture of the Uterus, without Laceration of the Peritoneal Covering.*—The *London Medical and Surgical Journal*, for 7th July, 1832, contains an interesting case of this description, by THOMAS RADFORD, Esq. Surgeon to the Manchester Lying-in Hospital. The subject of the case, (Hannah Speed,) was thirty-nine years of age, rather tall, and very thin, of a swarthy complexion, occupied as a clear-starcher, of extremely industrious habits, and pregnant of the ninth child. Her health during pregnancy had been tolerably good, with the exception of slight stomach complaints, which were, most probably, produced by the uneasiness of her mind as to the certainty of the fatal event of her expected labour.

Mrs. Upton, midwife, was summoned to attend her at 11 P. M., January 28th, 1831, and was told that the liq. amnii had escaped. Upon making an examination per vaginam, she could not discover any dilatation of the os uteri; she therefore left her, desiring to be sent for again, as soon as the pains came on. The day following, at 4 P. M., Mrs. Upton called, (not having received any message,) and the report made was, that the patient was much the same, but the less water was dribbling; no examination was made. At 9 P. M. of the same day, her attendance was again requested. On her arrival she found that the pains were apparently strong, but considered them as more the result of voluntary effort than uterine contraction; and this opinion was corroborated by the unchanged condition of the os uteri. As her belly was extremely pendulous, Mrs. U. placed the patient in the horizontal position, enjoining her to avoid all voluntary effort. Her skin, during the whole progress of her labour, was rather cold; but the midwife judiciously applied hot bricks to her feet, hot napkins to the belly, and gave her warm diluents to drink. Notwithstanding the injunction laid upon the patient, as to the necessity of preserving the horizontal position, she would get out of bed and bear her pains upon her knees, from which position suddenly starting she threw herself upon the bed; this was frequently repeated. At a quarter before 11 o'clock Mrs. U. again made a vaginal examination, when she found the os uteri dilating, and the head entering the superior aperture of the pelvis. The husband of the patient became anxious to have another opinion, and a message was sent to my house. My pupil, Mr. Bryden, went down to see her, and upon his return reported, that every circumstance connected with the labour were favourable, and that he had no doubts as to the propitious termination of the case. About half-past twelve, she was seized with vomiting, which was accompanied with great coldness of the skin. The midwife requested her to take a little brandy and water, which materially relieved her. After a short time she appeared worse; her countenance became pallid, her breathing was slightly hurried, and frequently interrupted by deep sighs; her pains, (which until this period, one o'clock, had continued,) now subsided. Under these circumstances the husband was dispatched for me; and during his absence she suddenly rose from the bed, and stood on the floor. She now became faint, sighed and moaned, but was supported by the midwife, who laid her upon the bed, where she immediately expired. On my arrival I found the event as just stated, and on making inquiry as to her complaints during the progress of labour, was informed, that she had moaned much, but had never uttered any sudden exclamation or shriek. I passed my finger into the vagina,

and clearly perceived the head of the child, which had partially entered the brim of the pelvis; and I found the os uteri not more dilated than the size of a dollar. The account received from the midwife was, that no blood had been discharged; and this was corroborated by my vaginal examination, the finger not being tinged with the colour of that fluid. I placed my hand upon the abdomen, and was much surprised to feel two tumours, running parallel with each other, a groove or depression evidently existing between the two, and yet the sensation communicated to the hand was, that they were connected together.

Sectio cadaveris.—The body was examined twenty-one hours after death, in the presence of Mr. Dick, my pupil Mr. Bryden, and Mr. Bird. The general surface presented an exsanguineous character, similar to what is observed as the result of excessive uterine hæmorrhage. On opening the abdomen the peritoneum appeared perfectly free from disease, nor was any fluid discovered in its cavity. The peculiar feeling presented to the hand, upon making an abdominal examination, (referred to in a former part of the paper,) was now fully explained. The uterus, which was very large, formed one segment of the tumour, (viz. the left,) and the child's body, covered by the peritoneum, the other. Upon making a very careful examination of these parts, not the smallest laceration was discoverable in any part of the peritoneal covering; an incision was made through this membrane, which exposed the body of the child. It also brought into view a longitudinal laceration of the cervix, and part of the body of the womb, the remaining portion of this side of the organ being uninjured. The child was then removed, and the head, which had partially entered the brim of the pelvis, was discovered to be hydrocephalic, and of very considerable size.

The uterus, as already stated, was not much contracted; its parietes were softer than I had ever before witnessed in cases of laceration. The edges of the wound were ragged, but no appearance of bruise or tendency to gangrene was discovered. There was only a small collection of coagulated blood found in the cavity of the womb, amounting to three or four ounces; but under the peritoneum, and anterior to the body of the child there was a diffused clot, thicker in some parts than in others, according as it was situated on a prominent or hollow part of the fœtus. It, in quantity, would most probably amount to twelve ounces.

The lowest portion of the cervix, and os uteri, were not implicated in the rent the placenta was situated on the left side of the uterus, to which it was completely adherent. The pelvis, on examination, was found of standard dimensions. The bladder was empty, but was perfectly entire.

Mr. Radford has also met with another case of extensive laceration of the muscular structure of the uterus, not involving the peritoneum—it proved fatal sixteen hours after the laceration. "In contemplating," says Mr. R. "the frequent fatality of cases of laceration of the womb, we are led to inquire whether there are no symptoms which show themselves, as universal precursors of this most dreadful catastrophe? and if there are, are we possessed of the means of prevention? The answer to this is, that at present we are not in possession of that knowledge which would warrant us in adopting measures requisite to accomplish this object. If we were to act upon our limited knowledge of the preliminary symptoms, the catalogue of mortality would increase more rapidly than if the result were left to the disposal of nature.

"In order to possess the means of averting this dreadful accident, it behooves every member of our profession to come forward and detail all the cases, whether successful or unsuccessful, which have or may occur to him; thus, ultimately, facts sufficiently numerous would be furnished, whence deductions might be made, and rules of practice formed.

"I was requested by Mr. Robertson to visit a patient, on whom he was in attendance, and who was suffering from protracted labour, arising from distortion. During our preparations for her delivery, she suddenly exclaimed, 'Oh! my belly, the cramp in my belly!' I immediately made an examination, and de-

ected a laceration extending partially through the substance of the womb. This circumstance I pointed out to Mr. Robertson, and he fully corroborated the fact on making an examination. We effected an immediate delivery with the perforator and craniotomy forceps, and fortunately the woman recovered. We were induced to accomplish the delivery more expeditiously, in this case, than we might have considered necessary, if our attention had not been awakened by her sudden exclamations.

- .. "It will be quite obvious to the reader, from the facts of the case of Hannah Speed, that there will be no great difficulty to attribute the result to its proper causes. The pendulous state of the abdomen, and consequently the altered axis of the womb, the hydrocephalic enlargement of the head; the early evacuation of the liquor amni; the position of the woman, who in kneeling had the trunk bent forwards during the action of the womb; and shall I add, a softening of the uterine structure."

"The perforation of the fetal head, (which was discovered only by the *post mortem* examination to be hydrocephalic,) might, in all probability, have led to a more fortunate issue; but, during the life of the patient, this fact was not known. Speaking of the hydrocephalic head, it may be proper to state, that its existence is not so easily ascertained as some writers would lead their readers to believe; three cases of this description have come under my observation, and yet the indications which are stated to characterize this condition of the head were absent in all.

"I should have extracted the child, by an incision through the abdominal parietes, if I had been with the patient at the time of her death; but my absence, and other circumstances, induced me to defer the investigation until a more favourable period."

CHOLERA.

28. *Historical Examination of the Epidemic Cholera of Paris; Account of the different Modes of Treatment employed against different Forms and Periods of the Disease, and Estimate of the results of these Methods.*—The numerous materials collected from all parts of Paris, will, doubtless, furnish the means of tracing a general history of the epidemic cholera, and while we wait for the periods when we may undertake this task, we shall publish, in the meantime, a series of facts by which it may be facilitated. We begin with the

Hôtel-Dieu.—The sanitary state of this large hospital always furnishes the exact standard of what is going on in the rest of the city. Its central position and the neighbourhood of several populous districts, caused patients to flock thither before the prevalent disease was heard of at the other establishments.

Already, especially under the care of M. Petit, it had been observed that several persons were attacked with profuse diarrhoea and serous vomiting; and one or two cases of sporadic cholera had been observed, which had yielded to simple rational treatment, when, on the 26th of March, a woman with the same symptoms, though in a more advanced stage, entered the St. Paul Ward. The existence of cholera was admitted, without, however, regarding the case as of the epidemic species. The woman died four or five days after.

On the 27th of March, 4 new cases, 2 men and 2 women, with the symptoms ascribed to Indian cholera, were brought in the evening. Assistance was promptly given; but a man and a woman died next day, and inspection left no doubt on the nature of the disorder. The remedies were external revellents and opiates, but reaction did not take place, and death speedily ensued. These cases were carefully recorded by M. Montault, pupil of M. Petit.

On the 28th, 9 men, labouring under intense cholera, were admitted. One died the same day, after being a few hours in the ward; 7 more died next day, and 1 only recovered. A woman entered the Hôtel-Dieu the same day, about

four in the afternoon, and expired before midnight. On opening a vein, no blood could be obtained; the exhibition of punch produced no reaction; and, to use the language of M. Magendie, by whom she was treated, she was a *cadaverized* case,—a true type of that asphyxial variety afterwards met with. These first demonstrations indicated the severity of the disease; and two wards were assigned for the admission of patients that might forthwith be expected. This apprehension was very soon confirmed; and next day, the 29th of March, 23 new cases, 14 men and 9 females, were lying in the St. Martine and St. Monica Wards, under the care of MM. Magendie, Honoré, and Bally.

Of these 14 men, 8 died the same day, and the remaining 6 the day after. One of the 9 women died the same day. Most of these patients, it may be remarked, came from the district of the Hotel de Ville, from the street of La Mortellerie, from the city; some belonged to districts less insalubrious, as the Gate of St. Denis, the street of Orleans St. Honoré, &c. Dissemination was manifest, and consequently it was necessary to admit some other influence beside that which is concentrated in a confined and isolated locality.

On the 30th, 40 new cases were received; 10 died the same day, and almost all the rest the ensuing day. The same day, (30th,) at midnight, 78 cholera patients were lying in the Hôtel-Dieu; and on the evening the following day, only 16 were in life, and expired in the course of the subsequent days. At this period, it must be observed, of 27 females only 19 died, while among 51 men there were 43 deaths. This alarming mortality depended not merely, as was asserted, on the uncertainty of the treatment; for most of the patients brought to the Hôtel-Dieu presented the symptoms of the most virulent form of the disease. In vain did we attempt to produce reaction, and to warm them by every means suggested by reason and experience; the violet tint of the countenance and the limbs continued; the voice was irrecoverably gone; the breathing slow and deep; the eye dull, and the eyelids half open. The serous discharges continued to exhaust the patient, who was quickly cut off amidst acute suffering from the cramps, and unabated præcordial anguish.

On the 31st, 50 new cases, 30 male and 20 female, were admitted; and it is remarkable that the proportion of admissions and mortality nearly observed this standard throughout. During these five days, therefore, the progress of the epidemic was rapid, and its commencement indicated a high degree of severity, and a wide extent of comprehension. Hitherto all the individuals attacked belonged to the working class, and they were generally middle-aged men, exhausted by labour and privations, badly fed and clothed, residing in unhealthy districts, neglecting every species of cleanliness, and guilty of frequent errors of diet. The majority had suffered before the first assault of the disease a diarrhœa of several days' duration, which had been neglected, or rather treated by wine, spirits, and other *stimuli*, resorted to by the common people in such cases.

The patients accommodated in the two wards already mentioned, remained only two days under the care of the physicians specified. All the heads of the faculty being assembled, resolved that a certain number of beds should be allotted to each; and in consequence thereof nine physicians and three surgeons divided the 168 beds contained in the two wards, making to each 14, or 7 men and 7 women. These physicians and surgeons were MM. Petit, Kecamier, Gueneau de Mussy, Husson, Magendie, Honoré, Bally, Gendrin, Caillard, Dupuytren, Breschet, Sanson.

Each head of the service had his internal pupil and his externals. The number of hospital attendants was augmented, but it was soon discovered that these measures, instead of alleviating and accelerating the duty, deranged its regularity. Very varied prescriptions, very different methods, measures executed at the same time, or at different hours, produced a degree of confusion, which caused much suffering to the patients, and which the zeal and intelligence of the most able assistants could not prevent. On the 3d of April, after which it became imperative to distribute the patients in all the wards situate on the left

bank of the Seine, 388 patients had been treated in the wards of St. Martine and St. Monica, and next day 281 deaths were to be divided among the 12 physicians specified above. Some days after, one-half at least of the residual 107 had expired, and 3 score only quitted the hospital recovered.

We shall afterwards consider the therapeutic methods observed; at present we must advert to the pathological principles on which the treatment was founded, and which were sought in the comparison of the symptoms with the necroscopic appearances.

The first inspections, performed with the minutest care, showed that the brain, the lungs, the liver, the spleen, and the other parenchymatous organs were not the seat of any arterial or venous bloody congestion, that there was not even cadaverous turgescence or mechanical *stasis*, and already the modification undergone by the blood was perceptible. Of this blood the chambers of the heart and the large vessels contained a certain quantity, though less than usual; but it was not in mass; there was no fibrinous clots in the aorta or pulmonary veins, it was blacker than the ordinary venous blood; its consistence was that of broken down currant-jelly, that is, a species of pulp a little diffuent, but without trace of separation of the serum from the fibrine. The inner membrane of the vessels offered nothing indicating a morbid condition, and all the branches of the abdominal portal vein were empty.

On the other hand, the proper digestive apparatus, viz. the stomach and intestines, presented evident signs of active congestion. The gastro-enteric mucous membrane was injected of a rose colour, punctulated and sprinkled with efflorescence of a bright red. There were many prominent patches of very distinct isolated follicles; and near the end of the *ileum* were all the anatomical characters of mucous inflammation of that portion of intestine. The whole tract of the intestine contained a large quantity of serous or sero-mucous fluid, tinged sometimes red, occasionally yellow, but most frequently turbid, whitish, depositing a flocculent pulverulent matter, as is done by a strong decoction of rice or an imperfectly strained emulsion. The large intestine appeared not unhealthy, and its contained fluid belonged to the *ileum*. The gall-bladder, without being distended, contained a blackish viscid fluid. The urinary bladder was uniformly empty, although the whole urinary apparatus betrayed no appreciable lesion. *Lastly*, the whole body was extremely rigid. The muscles formed through the skin bold reliefs, as in the most violent contractions. The fingers and toes were incurvated, the nails bluish: the countenance, pinched and contracted, retained the expression of suffering; and the eyes half covered by the eyelids presented the lustreless stare already observed in life.

The cerebro-spinal apparatus was the object of researches still more strict if possible. The brain proper was firm, punctulated with black blood. The gray substance rose-coloured, but all natural. Neither the *cerrebellum*, nor the annular protuberance, nor the spinal bulb, bore any trace of lesion. The serous fluid of the ventricles, and of the ex-serous cavity of the spinal cord showed nothing remarkable. The same may be said of the chief nervous trunks of the extremities.

Lastly, several great sympathetics were dissected in their entire course, and convincing proof was obtained that they presented no visible lesion.

These researches were made without preconceived idea, and with the laudable intention of forming an exact estimate of the organic lesions of the individuals who became victims to *cholera*. It was thought that proof was given of *active congestion* of the digestive apparatus,—congestion, by means of which was explained the enormous sero-mucous secretion forming the basis of the evacuations exhausting so rapidly the choleric subjects. This bloody concentration was believed to have the effect of speedily robbing the blood of a large proportion of its mass and constituent principles, since the residue was manifestly less than usual, and had lost the characters of healthy blood. The disturbance of innervation, in consequence of which these changes supervened, though maintained by a distinguished surgeon, is mere supposition; and not

even an incipient proof or a plausible trace could be discovered in favour of this revived opinion, which must be regarded as a mere hypothesis.

We must therefore be satisfied with regarding as uniform a very active irritation of the small intestine, or a first degree of inflammation giving rise to peculiar phenomena. From this, consequently, was deduced the first rule of treatment, the object of which was to oppose this inflammation. We shall see, nevertheless, that, notwithstanding this opinion, the treatment adopted was far from being purely antiphlogistic.

On one hand, all the patients brought to the Hôtel-Dieu, by no means presented the same symptoms; and if, on the whole, they were attacked by the same disease, it was impossible for them all to be attacked in the same degree, or for the disease to assume exactly the same forms in all cases.

The first patients brought to the hospital were in a state of deep collapse, of general cold, with the circulation almost at a pause, the large arteries alone presenting feeble oscillations. The beats of the heart were scarcely heard; and the ear, applied to the chest, perceived only a dull sound, denoting that the ventricles did not expel the little blood they contained. These patients expired speedily, whatever efforts were made to warm them; and many thus died in six, eight, ten, or twelve hours at most. With these patients the first and most urgent indication was to reëstablish the circulation, to induce reaction in the sanguiferous and nervous system, and put a stop to that state of slow *asphyxia* which directly threatened life. In these circumstances, M. Magendie administered several glasses of spirituous punch, spoonfuls of hot spiced wine, frequently repeated, and of Malaga and other spirituous wines. These means were, however, very far from producing always the effect desired.

Patients, however, in whom the refrigerating period was less advanced, were also brought to the hospital; and these complained of acute pains in the epigastric region, and in that of the heart, as if the lower part of the chest was the seat of a sense of weight, which embarrassed at once the motions of the stomach and those of the heart. In these patients the pulse was more distinct than in the preceding class, the cramps of the legs were violent and frequent, agitation was extreme, and the vomitings were accompanied with intense anguish. In this form or degree of the disease, an indication for detraction of blood, either by the lancet, or by means of cupping, or by leeches, was believed to be found; and MM. Husson, Honoré, Gendrin, and others, had recourse to the antiphlogistic method with success.

Other patients appeared with an assemblage of very singular spasmodic symptoms. Cramps, occupying simultaneously or successively almost all the muscles of the trunk and extremities, appeared the leading symptom of the disorder; the patient was in incessant agitation, uttered piercing cries, rolled in his bed, and often even threw himself on the floor, without being able to obtain a moment's respite. In some, who had almost no vomiting or purging, the countenance was red and congested, the eye brilliant, the belly tense, and the urine suppressed; and, had not the precursors of the disease been almost like those observed in other cases, it might have been mistaken for another disorder. Though in these cases of spasmodic cholera it was still thought useful to draw blood, the urgency of controlling what was denominated nervous irritation was admitted; and in these circumstances, several physicians obtained good effects from the use of opium in large doses, long-continued baths, and numerous analogous means.

Lastly, some patients presented all the symptoms of *cholera* deemed inflammatory. Pain, aggravated by the slightest pressure, burning thirst, general heat, red tongue, and hard pulse; and in these circumstances the means employed were modified by the vigour of the subject and the period at which he was brought to the hospital.

Thus, some days of experience were sufficient to demonstrate this great truth, that in *cholera*, as in every other disease, the treatment, regulated by observation is, alone, good and practicable, and that it is absurd to adopt a uni-

form and general therapeutic system. Was the eruption of this formidable epidemic in Paris in 1832 requisite to furnish occasion to prove, that exclusive principles, always fallacious, are particularly so in the practice of medicine, and that the search for a specific may be abandoned with that for the philosopher's stone.

The principal indications now specified, forming the basis of some partial modes of treatment, we shall mention the more general ideas which served as the foundation of special methods. We do not allude to specifics, but to a mode of treatment with reference to etiological ideas more or less founded on observations of some isolated facts, or on analogy with other disorders, the ultimate nature of which is better understood.

Many physicians, for instance, regarded *cholera* as the result of a species of miasmatic poisoning, and on this supposition founded their treatment. The painter's colic is accompanied with symptoms similar in some points of view to those of cholera. Hence the idea of employing in the last affection the sulphate of *alumina*, sulphuric lemonade, and other remedies, which peculiarly modify the intestinal tube when under the influence of the oxides of lead. This method MM. Gendrin, Sanson, and others employed, and it must be admitted, without any success.

M. Dupuytren considering the most frequent symptom, that of the colliquative extenuating diarrhœa, as the one which most urgently demanded the attention of the practitioner, prescribed acetate of lead and the preparations of opium. He believed that these remedies, administered in large doses, would victoriously oppose the extreme determination to the small intestine, and re-establish the balance by the sole operation of their astringent and sedative properties. This theoretical view derived more or less plausibility from analogy; but it gave way under clinical experiment; and it was requisite to abandon it after some trials conducted with becoming precautions.

The therapeutic measures underwent several modifications suggested by the leading symptoms. Each physician had a peculiar method, and in this we observe great diversity, if not in substance, at least in form.

In the refrigerating period, M. Magendie gave internally diffusible stimulants; MM. Petit, Honoré, Gendrin, and several others, employed friction of the trunk and extremities with hot aromatic liquors; some physicians placed the patient in a vapour-bath; others enveloped him in woollen coverings, and conveyed under them, by means of an appropriate tube, a large supply of alcoholic vapour. Lastly, M. Recamier employed cold affusion, or at least affusion of water at 57, 58, or 59 degrees only, for one or two minutes over the whole surface; a method which produced energetic reaction, and almost instantaneously restored heat and sweat. The extremities of the patient were surrounded with hot bricks, hot smoothing irons, bags filled with hot sand, bottles of hot water; and, in short, nothing was neglected to produce speedily the result.

At a period less advanced, when the patient, yet retaining a little heat, was suffering from vomiting and purging so profuse as to threaten immediate dissolution, means also very varied, and suggested by some peculiar systematic notions, were adopted. Thus, the physiological physicians applied leeches to the epigastrium, opened the veins of the arm, administered soothing drinks, and, in short, studied to allay the irritation of the digestive apparatus. Others, attaching less importance to these symptoms styled inflammatory, did not hesitate to employ means more active, more direct, and more likely to augment the disturbed action of the disordered organs. This revulsion, as the followers of M. Broussais termed it, brought about most happy changes. Tartrate of antimony, in the dose of 2 or 3 grains, ipecacuan, in a quantity varying from 15 to 18 grains to a scruple, and even more, was administered boldly, and with the happiest effect. In this M. Recamier imitated the Germans, who have long boasted the superiority of this substance in the treatment of dysentery, and other acute affections of the intestinal tube. The vomiting, increased at first, soon ceased, and with it the intestinal discharges; and gentle uniform warmth then

followed, the skin was covered by sweat, the cramps ceased, and tranquillity of the system was restored. These effects obtained in a great number of patients, induced almost all the other physicians to employ the same remedy; and at present ipecacuan is in frequent use in the treatment of cholera.

Under the influence of the same idea, the same physician employed the sulphate, and the carbonate of soda and of magnesia, in ordinary purgative doses. The choleric diarrhœa was by this very simple remedy very promptly controlled; and we owe to it numerous cures.

When the patient in the deepest collapse appears insensible to every stimulant, the electro-puncture has been used with some benefit; and to this M. Bally is indebted for reviving several patients in this hopeless condition. An agent still more active; namely, cauterization of the epigastrium was also employed; but M. Dupuytren, by whom it was used, has had no reason to commend it. Lastly, with the same object, several drops of ether saturated with camphor, were administered with apparent advantage by M. Recamier.

Besides the local bleeding, by means of leeches or cupping, and those practised at the arm and jugular vein by the lancet, arteriotomy was performed on a number of subjects, who, it must be confessed, appeared to derive from it no benefit. The temporal artery was opened by MM. Magendie, Recamier, Gendrin, and several others; and by this means some spoonfuls of rose-coloured blood, with impaired fluidity, trickled away as if from a venous tube. In two subjects, it was determined to open the radial artery a little above the articulation of the thumb, where it is superficial, and may be easily tied. It was then observed that this vascular trunk scarcely contained a feeble thread of blood, the motion of which was so much retarded, that the jet scarcely rose beyond the lips of the wound, the ventricular impulse was almost extinct, and, to obviate hæmorrhage, a simple compress and ordinary bandage was sufficient. The thin plastic blood scarcely reddened the two or three turns of the roller which covered the wound of the artery; when reaction began to appear, there was no hæmorrhage, properly so named; and ligature of the vessel was dispensed with as superfluous.

These facts are not new; and the surgeons of Berlin went a step further. The brachial and even the crural artery was opened; and it will scarcely be credited that a distinguished surgeon, whose name we conceal, ventured to open the carotid artery, because the other arterial trunks had furnished no blood. It is related that the latter arteries being equally deficient, the operator introduced a stylet into the aorta and left ventricle to rouse it to new contractions. Death took place on these manœuvres, although denied by one of the admirers of this chirurgical hardihood; and there was not time to see the patient sink under hæmorrhage.

Though arteriotomy is practicable in the treatment of severe cholera, it is probable that it ought not to be employed, because the arterial system is not the seat of the mischief. The venous blood is manifestly changed, while that of the arteries is merely deficient in quantity. If this were practicable, it would be more rational to attempt transfusion, than to deprive the system of the little stimulus left. But rational physicians, who admit as a therapeutic agent, that only which bears a relation to well-marked symptoms, will have recourse to suitable means; and we turn to those who particularly belong to this class.

We shall take a view, in the meantime, of the method employed by each of the physicians of the Hôtel-Dieu, and the results obtained in their different departments. We shall do so in reference to the peculiar circumstances presented, and which have influenced the numerical amount of the deaths and recoveries.

The first seven beds of the St. Martine Ward being under the care of M. Honoré, we shall begin with that honourable practitioner. M. Honoré distinguishing two well-marked periods in the progress of cholera, prescribed the following treatment. During the attacks, that is, when vomiting and looseness, cramps, refrigeration, and more or less *aphonia* were urgent, friction on the ex-

tremities and the præcordial region, from half hour to half hour, with flannel soaked in a mixture of two ounces of spirit of camphor, and half a drachm of tincture of cantharides; 2d, to administer every half hour *enemata*, consisting of rice decoction, 1 pint; extract of rhatany, 2 drachms; laudanum, 40 drops, and ether, 4 drachms—the whole divided into 4 *enemata*; 3d, every half hour a spoonful of Malaga wine; 4th, carbonated water, or sugared tea for drink; and 5th, the anti-emetic of Dehaen, with 15 drops of laudanum, and half a drachm of the anodyne liquor of Hoffmann. If, in spite of all these means, the vomiting continues, a large blister was applied to the middle of the back. Lastly, there was administered in the night, in spoonfuls, a potion consisting of Malaga wine for its basis, and a large proportion of the syrup of *diacodium*; then revellents were applied to the feet, &c.

In the period of reaction, the treatment was regulated by the leading symptoms. Blood, for instance, was drawn from the arm, or by leeches from the epigastric or iliac regions, according as symptoms of morbid congestion appeared in different points of the digestive apparatus. M. Honoré, finally, has generalized in some degree his opinion on the general treatment of *cholera* by confining it to three indications;—to restore warmth, to oppose by all possible means the concentration which tends to the centre, and then at a subsequent period to moderate the effort of reaction which takes place in the opposite direction.

About 40 patients of both sexes were treated in the beds allotted to M. Honoré during the first seven days of the epidemic; and half of the number expired. It must be mentioned that four or five individuals at least were brought dying, and remained only one or two hours in the ward, so that to them no cure could be administered. After this period, that is, during the succeeding eight days, nearly a like number of patients entered the same division, and the results were the same. It must, therefore, be admitted that this mode of treatment has been at once one of the most simple and the most successful. This observation is not new; but its repetition at present is not superfluous.

M. Gendrin, who comes next in the numerical series, distinguishes in general four degrees of the disease; precursors lasting for days; vomiting and cramps; then violence of the face and extremities; and, lastly, reaction. Half an ounce of sulphate of *alumina* was dissolved in a mixture consisting of two ounces of barley water, and two ounces of syrup of quinces, with three grains of the bare extract, and a spoonful was given every half hour in a glass of cold water, which was also used for drink. A bladder full of pounded ice was applied to the belly, and the extremities were vigorously rubbed with a mixture of equal parts of the balsam of Fioraventi and traumatic alcohol. Lastly, the patients in stupor and *asphyxia* were subjected to the cold affusion for one or two minutes.

These measures were not followed with all the success desired; and the same physician afterwards varied his directions considerably. Latterly, he appeared to confide for the treatment of the early period of the disease in blood-letting, energetic revellents to the inferior extremities, and the internal use of ipecacuan. These means furnished favourable results, but only when the intensity of the epidemic appeared to abate. M. Laberge, resident pupil of M. Gendrin, has stated, that at first one cure only was obtained among seven or eight patients.

• The following beds belonging to M. Dupuytren, were occupied by a very great number of patients with severe symptoms, and of whom, consequently, a considerable proportion, more than two-thirds, sunk. A certain number, indeed, of these choleric cases brought moribund, expired either on the stairs, while they were being conducted to the ward, or on the litter, before there was time to undress them; and these cases, though reckoned in administrative statistics, ought to be deducted from the medical report. Documents afterwards published by M. Dupuytren show, that from the 7th of April to the 13th, he has lost a little more than a third of his patients,—a result which restores the equilibrium, and shows that the numerical mortality has been raised only in

consequence of accident which placed on his beds dead subjects, or patients in the last agonies.

The treatment of M. Dupuytren, besides the acetate of lead, already mentioned, and cauterization of the epigastrium, which was practised in one case only, consisted in friction of the extremities with flannel soaked in a concentrated decoction of mustard with alcohol, covering the body with emollient fomentations, leeches applied where pain was felt, and lastly, drink of infusion of lime-tree flowers, edulcorated with syrup of *diacodium*, in the rate of one or two ounces to the pint of ptisan. Subsequently the professor announced that he confined himself to follow indications as they rose, and abandoned all thought of specific cure.

M. Petit, perhaps, was the first to entertain the opinion of acting in a continuous manner on the spinal cord, and producing changes in the phenomena of innervation. He consequently caused to be placed along the whole part of the spine a piece of cloth soaked in a liniment composed of one ounce of oil of turpentine, and a drachm of hartshorn. Over this was drawn a very hot smoothing-iron; and the result is an instantaneous evaporation of a great part of the liniment, which then acts strongly on the skin of this region, and produces speedy vesication. By this ingenious method the spinal cord is irritated, and very soon under this influence the heat returns, the vomiting and cramps abate, the circulation is re-established, and the patient experiences considerable improvement. Its action is further promoted by various accessory means, such as hot bricks, previously enveloped in cloths dipped in vinegar, round the extremities, frictions, with decoction of mustard, stimulated by hartshorn, and the internal use of balm and mint tea. At the same time, a mixture consisting of distilled lime-tree and balm waters, two ounces each, twenty drops of laudanum, and one ounce of etherated syrup is given in spoonfuls every hour, and frictions by a liniment composed of two ounces of camphorated chamomile, a drachm of laudanum, and a drachm of hartshorn, are actively used.

Though, like all the physicians of the Hotel-Dieu, M. Petit lost during the first days of the epidemic a very great number of patients, afterwards he was more fortunate than many among them, and probably in consequence of his method of treatment. According to a notice read by him to the Academy of Medicine, on the 10th of April, his cures were in the proportion of two in three. We repeat that this can apply only to the patients admitted since the 5th of April; for, previous to that in the St. Martine and St. Monica Wards, the proportion was inverted.

M. Husson employed at first the diffusible stimulants, tonics, and external revellents or irritants. The unsuccessful results were very numerous; and other methods were practised. He applied leeches, bled, and administered mild drinks; he had recourse then to the anti-emetic potion of Riverius; then to protracted baths; to anodyne clysters, and, under the influence of this method, he saw several recoveries take place. They were indeed few; for, on the fourteenth day of the epidemic, of 140 choleric patients placed on his beds, he counted only 5 or 6 well-established cures. Too much reliance must not be placed on convalescent cases, for they often expire very quickly, without time being given almost for a relapse.

The treatment pursued by M. Magendie enjoys, in the meantime, a celebrity quite popular. Journals of all ranks have proclaimed the good effects of punch, and they might be believed if we knew how far publications of this sort must be trusted. A diffusible stimulant given in the cold stage produces reaction; but it must not from this be inferred that all the patients are thus cured. Like all his colleagues of the Hôtel-Dieu, M. Magendie witnessed more than one-half of his choleric patients expire; and, modifying his *panacea*, he now gives as a drink a mixture of two ounces of acetate of ammonia, one pound of sugar, and four *litres* (8 pints) of infusion of chamomile. Occasionally he substitutes

for the punch a vinous liquor sugared and spiced with tincture of *canella*, in the proportion of two ounces to two *litres*, or four pints of wine, of which a small glassful is given every hour.

This treatment has been followed by a degree of reaction which it is often difficult to controul. The circulation excited by alcohol soon produces congestions in the head, and digestive apparatus; and more than one patient sunk with delirium, and afterwards deep coma. This congestive state, local and general depletion were always as inadequate to remedy as the application of cold to the head, and the most active revellent irritants to the feet.

M. Gueneau de Mussy, with his usual sagacity, followed the indications, and treated the principal symptoms as they required. Like M. Honoré he obtained favourable results from this progress; he modified the *formulæ* according to the particular cases which were presented; and recognising the uselessness of a great display of resources against cases which the simplest examination showed to be fatal, he was contented to treat those which might reasonably become so.

M. Bally has tried the efficacy of many energetic agents. *Opium*, given in large doses by all channels, he very soon abandoned as injurious in the period of collapse, and useless in others. The *sulphate of quinine*, in doses of from 30 to 40 grains, produced no benefit in four patients, and was also abandoned. The oil of *croton tiglium*, so much commended by several physicians of the East India Company's service, was of no avail to a poor woman, who quickly expired. Local and general bleedings, iced water, and other means were successively relinquished. *Lastly*, recourse was had to galvanism, which appeared to revive with promptitude *two* or *three* patients brought in a very advanced stage of the disease, but it has rarely been employed since; and M. Bally satisfies himself with general measures, excepting the modifications which are the result of his peculiar therapeutical ideas. In conclusion, if he has lost many more cases than his colleagues, it partly depends on this circumstance, that the 30 or 40 first choleric cases brought to the Hôtel-Dieu were treated by him alone, and that, with a single exception, all of these died.

M. Recamier found, in these afflicting circumstances, a new occasion to demonstrate the fertility of the resources of his inventive mind. Has this celebrated practitioner been more fortunate in results? That we cannot assert. In the mild form, or in the period of onset, he draws blood from the veins, till this fluid appears to become red in the air; he gives every second hour eight drops of laudanum in four spoonfuls of rich mucilage or gum arabic, aromatized with peppermint water. He warms the patient to restore heat and transpiration; he applies to the belly very hot cataplasms slightly stimulated with mustard, or a volatile camphorated irritating liniment; he orders repeated injections with decoction of bran, of starch, or of bread crumb, adding a little laudanum. If the diarrhœa continues, he exhibits half an ounce of *arnica* root and one-fourth of a grain of *nux vomica*, gradually augmented afterwards.

In violent *cholera*, or the blue stage, M. Recamier still bleeds a little, but cautiously; he excites reaction by means of affusion for a single minute of water at 58 or 59° F., and after drying the patient, and placing him in a warmed bed, the skin is very soon covered with sweat. With cold rice water for drink, a spoonful of a solution of sulphate or of hydrochlorate of soda, according to the state of the stomach, was given every quarter of an hour. Reaction being established, the treatment of the first stage is gradually introduced, and the chief study is then to moderate the congestions which take place on the different organs.

M. Recamier states that he has ascertained that opium, camphorated ether, acetate of ammonia, sulphate of quinine, and the other fixed or diffusible tonics, are absolutely useless in the blue period, and that sinapisms and all the rubefacients are equally unavailing. The small number of recoveries even which he obtained in the commencement of the epidemic, appears to him to be owing to the cold affusion, the iced drinks, and the blood-letting. Afterwards the

same physician had recourse to sulphate of soda in strongly purgative doses, to ipecacuan in powder and decoction, and massing or kneading the surface instead of friction; but he contends that the different periods of the disease should be well distinguished. The blue period is, in his opinion, utterly beyond the resources of art; vital resistance is extinct, and the means employed to excite its return serve only to accelerate death, because the organism does not obey them. It is as if a whip struck a corpse.

M. Sanson began by prescribing a very hot and strongly sinapised *pediluvium*, or by subjecting the patient for some minutes to the cold affusion. He then ordered a spoonful of a mixture of four ounces of the jalap of diacodium, and one drachm of sulphate of alumina, to be given every hour; two clysters daily of decoction of poppy heads, and a drachm and a half of sulphate of alumina, and rice decoction, for drink. M. Sanson remarked that the aluminous mixture, which has a very nauseous taste, appeared agreeable to the patients for some time, but became soon insupportable. In the first case, there was endurance of the stomach, and it ceased as soon as the symptoms were abated. Under the influence of this treatment, as of all the rest, the half at least of the patients died.

M. Breschet, who had at first adopted the electro-puncture, very soon abandoned this remedy, the success of which was only temporary and ineffectual. He gave diffusible stimulants of every kind; he bled, cupped, and scarified the epigastric region, and gave cool liquors for drink. He employed volatile liniments, affusions, external revellents of every kind, but nothing in particular.

We may say as much of M. Caillard, who, engaged by the nature of his duties at the Hôtel-Dieu, leaves to zealous and intelligent pupils the charge of carrying into effect a plan of treatment, the outline of which he conceives with them. These gentlemen have not had occasion to regret the loss of a greater number of patients than the other physicians; and the result affords a new proof of the little efficacy of any therapeutic method in cases of severe cholera.

In conclusion, to establish in a general manner the value of the different curative methods adopted at the Hôtel-Dieu; and to avoid an unjust division of unsuccessful issues among the 12 heads of the service, we shall give the general results, leaving to each of these gentlemen to furnish the individual returns. Thus, on the 17th April, at midnight, 1771 choleric patients had been admitted into the Hôtel-Dieu; of this number 1054 died; 344 went out cured or convalescent, and the residual 373 are still under treatment, and several must die. This shows that these deaths are in the proportion of two-thirds.

Professor Chomel, who conducts at the Hôtel-Dieu the course of clinical medicine for the faculty, had received in his wards during the first days of the epidemic, two choleric cases of the inflammatory character, which, treated by antiphlogistic measures, underwent at first a remarkable improvement. In one patient, typhoid symptoms soon supervened, and carried him off on the fifth day of his convalescence. The other sunk in like manner, after showing remarkable improvement.

The distribution of the choleric patients in the first two wards, being opposed to that of which M. Chomel had charge, it was only afterwards that a division of the St. Paul ward was assigned him. In this division remedial means were wisely afforded; and after a conscientious examination, we have found that the treatment of this distinguished practitioner, though neither extraordinary, nor very energetic, nor incendiary, nor extenuating, furnished neither more fatal cases nor less success, than that of physicians who announced pompous results from particular methods.

In all the cases of cholera deemed inflammatory, that is, with preservation of pulse and heat, cramps and vomiting, &c. M. Chomel prescribed blood-letting, and applied leeches to the epigastrium, and gave opium in pills. For drink he used solution of gum syrup; the belly was covered with cataplasms, and the limbs were rubbed with camphorated oil of chamomile.

In the *cholera algida*, or chill form, he employed decoction of coffee, and a blister on the spine, from the nape to the middle of the dorsal region. External warmth was applied by all means. The gum-syrup solution formed the basis of the fluids drank, though tea and lime-tree infusion were also given, and for the diarrhoea rice-ptisan with opium. In some cases of chill cholera, M. Chomel employs the blister to the epigastric region, and placed on the exposed *derma* half a grain of acetate of morphia. In cases with delirium he applied leeches to the mastoid processes, and, in short, founded his prescriptions on the character of the principal symptoms.

We shall be able only subsequently to furnish an exact statement of the number and kind of the patients treated in the division of M. Chomel; but we may be assured that its exactness will be unfortunately too rare in the actual circumstances. We shall in the meantime advert to the results obtained in other hospitals.

La Charité.—The central position of this hospital brought to it a great number of patients; and on the 27th there were 3 cases. From this period to the 2d April, 30 new cases were admitted, on the disposition of which the same precautions were observed as at the Hôtel-Dieu. Two wards, St. Jean de Dieu for men, St. Magdalene for women, were selected as the most salubrious and the best situate to facilitate the duty. MM. Fouquier, Lerminier, Rullier, Rayer, and Dance, shared the beds in equal numbers.

Entertaining nearly the same opinions on the mode of opposing the disease, these practitioners studied to produce reaction as promptly as possible, and to controul it when it displayed excessive violence. M. Fouquier prescribed in a potion of aromatic distilled water, two drachms of acetate of ammonia, and one ounce of canelion water, to be given in spoonfuls. He ordered also three or four grains of the watery extract of opium, in divided doses, during the day; several sinapisms at the same time to the legs, to be renewed if needful; frictions with camphorated spirit, and infusion of chamomile for common drink. When reaction was speedy and vigorous, he ordered fifteen or twenty leeches to the epigastrium.

M. Rullier caused the bodies of his patients to be rubbed with a liniment consisting of tincture of bark and camphor; he applied sinapisms, and administered every half hour spoonfuls of a mixture consisting of a scruple of sulphuric ether, a drachm of laudanum, and an ounce and a half of distilled water of lime-tree and mint, in a decoction of poppy heads properly edulcorated.

After frictions and other external means of warming the patients, M. Lerminier caused them to drink a small glassful every hour of a mixture composed of two ounces of syrup of valerian, two drachms of alcohol, and twenty-four drops of *aqua ammonis*, in two pints of infusion of mint and orange flowers. In the intervals, or instead of this stimulating ptisan, he prescribed a mixture consisting of two ounces of peppermint water, half an ounce of acetate of ammonia, two drachms of sulphuric ether, two drachms of laudanum, and two ounces of syrup of eyebright. By these remedies a good degree of head was promptly obtained, and to them more than one patient owed his recovery.

We wish we could detail the treatment pursued by the young and unfortunate M. Dance, who was to have published in the Archives the result of his observations on *cholera*; and the acuteness and conscientiousness with which they would be made, are well known. A deplorable event deprives us of the information to be furnished by an observer so judicious; and we know only that the treatment which he had begun to follow, was that of M. Fouquier already mentioned.*

By a note of M. Danyau, head of the clinical department of La Charité, we learn, that of 83 cases admitted under M. Dance, 40 died, 12 were cured, and the rest were under treatment. Among the 40 deaths, two-thirds died

* M. Dance, physician to the Cochin Hospital, was attacked with cholera, about the beginning of April, and died, after a painful struggle, on the 18th.

after remaining less than three hours in the hospital, part of the residue in twenty-four hours, and none survived the third day. M. Dance derived great advantage from the application of dry cupping applied round the base of the chest; and M. Danyau, who continued his duty, has much reason to congratulate himself on the use of the means which has superseded *asphyxia*, and revived the action of the heart. M. Dance had almost entirely renounced the employment of opium, especially by the mouth; and he gave cold lemonade, Seltzer water, and ice in pieces; and these means almost always succeeded in checking the vomiting.

M. Rayer, one of the physicians who has in the best spirit observed cholera, has given us a note, which we almost literally transcribe, because it constitutes one of the most useful documents on the treatment to be followed in the different forms of the disease.

The first choleric cases entrusted to the care of M. Rayer, were mostly in a desperate state. They were old men dying, or adults with the most severe symptoms of cholera. At first glance, and at any other period, they might have been taken for drowned persons expiring. Next day, and the following one, similar admissions continued; but several patients were now distinguished in whom life appeared less nearly extinct; and several hospital patients were attacked, and presented successively the several symptoms of the different stages. Comparing these facts with some others much less severe observed in the city, M. Rayer perceived, that it was less important to seek a remedy against cholera than to study carefully its individual varieties, the shades, the degrees, and the complications, in order to adapt to its periods, or its various forms, a distinct and rational treatment. With this object, and to distinguish the principal conditions in which each patient was at the moment of admission, he fixed on the leaf of his diagnostic register; *slight cholera, or the first period of cholera; severe or chill cholera; simple or complicated cholera; cholera slight at beginning, or with threatening of the second; and the adopted peculiar modes of treatment for each of these morbid conditions.*

In *slight cholera, or the first period*, distinguished by the feeling of a bar across the pit of the stomach, and giddiness, soon followed by thirst, purging, and vomiting, more or less abundant and repeated, by the continuance of the pulse almost natural, or only slightly enfeebled, with little change of voice, cooling of the head, or in the colour of the nails and skin of the hands,—M. Rayer administers opiates and rhatany root in draught, pisan, or clyster, as the evacuations take place upwards or downwards. At the same time he recommends maintaining a gentle degree of heat of the surface; even to raise the temperature, and excite sweating by the aid of hot bricks at the flanks, and bags of hot bran on the belly; cramps are to be stopped by the application of sinapisms; and thus a cure almost uniformly is effected in children and persons of mature age, unless the symptoms of the second period appear, which usually happen in old men, or in men of mature age but deeply impaired constitution.

In *severe or chill cholera*, marked by burning thirst, discharges of watery, turbid, whitish matter upwards and downwards, and by suppressed urine, &c. M. Rayer orders the application of four sinapisms, two to the legs and two to the forearm, compresses impregnated with hartshorn on the chest, etherated Malaga wine given in spoonfuls every two hours, less frequently if it is not borne; decoction of rhatany acidulated with citron-juice; dry frictions and warmth to the surface; and clysters of rhatany, etherated and opiated. By these means reaction may be developed, unless in persons beyond 70, in whom life is extinguished almost directly by the cold stage of the disease. In one person only beyond 70, a woman of 74, did M. Rayer witness reaction established.

When reaction takes place it is requisite to maintain it, and yet to keep it within due bounds; and unless this is done, local determinations and violent inflammations,—*secondary disorders*, greatly more frequent now than at the commencement of the epidemic, are established; and existing diseases are at the

same time aggravated. As a secondary disease, M. Rayer observed among about 200 cholera patients, one acute *peritonitis*, one *amygdulitis*, two cases of *erysipelas* of the face, three cases of *pneumonia*, several of *gastritis*, and a greater number of *cerebral affections*, slight or severe. After death he never met inflammation of the *spinal cord*, or the great sympathetic. To watch the arising symptoms of these diseases, M. Rayer performed two visits daily to the hospital; and in the interval the cases were observed by an intelligent pupil.

According to M. Rayer the cerebral affections observed after the chill stage have a *double origin*. In one the most rare, (*the choleric cerebral state*,) in consequence of reaction, feeble or incomplete, the patients retain a choleric colour, fall into a state of stupor and debility, with furred tongue and brown coating of the teeth, the face cold, and the radial pulse feeble; and if this state continues some days, the patients present the expression symptomatic of the third period of ileo-glandular inflammation, *dolium-enteritis*; and after death no visible lesion was found in the brain and its membranes. In the second case, (*cerebral congestion*,) in consequence of powerful reaction, spontaneous or induced by art, the patient becomes dull and stupid; the face is red and hot, especially in the evening, the pulse more distinct, and the eyes injected; agitation and sometimes delirium take place in the night, with red dry tongue, thirst, &c.† and after death in general the cerebral veins are injected, and sometimes the cerebral substance is of a rose-red tint, with or without serous fluid in the cerebral cavities. In the first case M. Rayer ordered blisters to the inside of the legs, if the sinapisms employed in the chill period had not vesicated, vinous water for drink, and clysters of etherated rhatany decoction. In the second state, and sometimes before its development, from the first moment of strong reaction before the appearance of cerebral symptoms, M. Rayer prescribed warmth to the feet, cold by compresses, or ice to the forehead for several hours, especially in the evening, or leeches behind the ears, and keeping the patient up during the day if possible. Local inflammations were observed to be more severe in choleric subjects than in any other condition; and blood-letting, though urgently indicated, proved speedily fatal. A choleric patient attacked by *pneumonia* of the left side, died some hours after blood-letting; and the inferior lobe of the lung was found condensed and infiltrated with black violet-coloured blood, similar to mulberry juice.

M. Rayer saw cholera induce abortion in pregnant females, supervene at the moment of labour, and the infant born dead, and in those suckling gave rise to the most severe and fatal symptoms. Cholera appearing in persons already attacked with other affections, always belongs to the first class.

Occasionally the first disease disappears after the cure of the cholera, as happened to an Englishman labouring under tertian fever; and in other cases it is little modified, as occurred in a young person with the third degree of *pneumonia*, and in whom, after the cure of the cholera, resolution proceeded. Lastly, the original disease may be unmodified, as occurred in several consumptive subjects who survived the choleric attack, and in two persons with itch, who contracted the epidemic disease.

De la Pitié.—This hospital, situate near several very populous quarters, early received a great number of patients, who filled two wards. MM. Andral, Bouillaud, Louis, Clement, Parent-du-Chatelet, and Serres, as physicians, and MM. Lisfranc and Velpeau, among the surgeons, had the equal charge of the beds, and they determined that a physician and a surgeon should be always in attendance at the hospital to minister to the patients brought. In the first four cases, brought on Thursday, 29th of March, M. Serres prescribed infusion of chamomile, and a draught of ether and laudanum in valerian and mint water. Three of these died the same day, and the fourth had favourable reaction, and went out well at the end of eight or ten days.

The physicians of the hospital adopted at first a uniform mode of treatment, the basis of their remedies being warm vegetable diluents, with opium by the mouth and by clyster, and warming the beds by means of alcoholic vapour. In-

dependent of the obvious impropriety of so general a mode of management, without regard to the character of individual cases, narcotism quickly appeared in the majority, without arresting the unfavourable symptoms of the disease. This method was therefore abandoned; and each physician undertook the treatment of twelve patients, six of each sex, according to the symptoms and the stage of the disease.

M. Andral substituted for the narcotic potion a mixture composed of one drachm of acetate of ammonia, fifteen grains of sulphate of quinine, twenty drops of sulphuric ether, and twenty grains of camphor; allowed cold lemonade; and caused the extremities to be rubbed with tincture of cantharides. For profuse diarrhœa he ordered clysters, containing each twenty drops of laudanum, and twenty grains of sulphate of quinine. During reaction, blood-letting, local or general, was employed according to circumstances. At the onset of the disease, M. Andral at first employed blood-letting, and afterwards ipecacuan.

M. Bouillaud found in the first dissections sufficient reason to employ anti-phlogistic means freely, with revellents and opiates only; and on the 6th of April, he had already inspected the bodies of more than forty victims of the disease. Though he maintains that inflammation of the intestinal mucous membrane performs an important part on the disease, and makes one of its essential elements, he admits that the anti-phlogistic method is useful only at the onset of the disease, before the chill stage. Leeches to the epigastric region repeated, if requisite, four or five times, iced liquors, currant water, emollient cataplasms and clysters, slightly narcotized, and a strict diet, are his chief remedial means. In severe cases, however, he allows weak coffee, and cauterizes the region of the spine after the method of M. Petit; and under this application, breathing and the motion of the heart was restored in individuals who appeared dead.

M. Clement placed great reliance on the preparations of quinine, which were applied endermically when they seemed to augment vomiting; and in one case fifty grains were applied to the epigastrium, thighs, &c.; in others cases by the mouth and by clyster.

M. Serres employed the antiemetic draught of *Riverius*, tartaric and citric acids, blisters and sinapisms, during collapse, and blood-letting, general and local, in the stage of reaction.

M. Parent-du-Chatelet prescribes, in the severe period, alcoholized lemonade, an etherated draught, Madeira, a clyster of rice water, with extract of rhatany and laudanum, and friction; during reaction, emollient liquids and venesection, if requisite. These means have been successful in many cases, and have been adequate to restore some of those who were narcotized during the treatment of the first days of the epidemic.

It has been impossible hitherto to obtain accurate returns of the number of cases of both sexes treated under M. Louis; but, according to the statements of M. Eager, his pupil, with a sufficient number of blue cases, the instances of ordinary cholera were numerous. The general treatment of the cold stage consisted in friction and hot cloths externally, alcohol and laudanum draughts internally, ice for checking the vomiting, and local and general bleeding, which appeared to relieve the oppression, but which was generally unavailing when the radial artery had ceased to beat. During reaction the disposition to local congestion was opposed by local and general blood-letting, which sometimes succeeded, but more frequently failed.

In the nescropic inspections of this physician, the same results were almost uniformly remarked. The intestinal mucous membrane of the small or large intestine was commonly ecchymosed; in other cases the submucous cellular tissue was much injected; the *plicæ* of the jejunum sometimes remarkably injected; the mesenteric vessels, the superior and inferior *cava*, loaded with dark-coloured blood; the heart filled with black coagulated blood; the lungs much obstructed with black blood; the bladder remarkably retracted, but its mucous membrane sound; the liver slightly injected; the gall-bladder distended with

black ropy bile; the Peyerian glands usually well-marked, distinct and prominent; violet-red patches in various points of the intestinal mucous membrane; the gastric mucous membrane, like the intestinal, more or less reddened, and often remarkably mammillated. The brain, sometimes injected, contained serous fluid, more or less clear. The skin was violet-coloured; and tetanic rigidity of the extremities was always distinct.

M. Velpeau, like all his colleagues, varied his treatment according to the indications. After the 3d of April, for the opiate he substituted mercurial frictions apparently without benefit. His general mode of treatment consisted, after rolling the patient in flannel, in sinapisms to the feet, knees, and thighs, blistering the epigastrium, clysters of sulphate of quinine, laudanum, and camphor, repeated as required, aromatic diluents, and the endermal use of quinine. By these means several, apparently dying, recovered. M. Velpeau tried charcoal internally, punch, and large doses of calomel without advantage.

The supposition of M. Reveille Parise, that persons with cauterized issues, blisters, or even old wounds, are not attacked by cholera, was disproved by the experience of M. Velpeau, who saw six women attacked in a surgical ward where they were kept for old ulcers and other diseases with established suppuration.

Between the 11th and 18th of April inclusive, M. Velpeau lost 11 of 30 choleric patients; 6 went out well, 5 were convalescent, and 8 remained under treatment; and in the two latter divisions several deaths did take place, and reduced the number to one-half. This proportion is small, and all candid physicians agree that it is often much more. It remains, nevertheless, to be told what number of these cases were severe, what number were women, and at what period they were brought to the hospital; and it is further to be remarked, that the mortality at the time specified was less than at the beginning of the epidemic. The following sketch by M. V. gives a general idea of the cases treated at La Pitié.

Between the 30th of March and the 15th of April, 592 choleric cases were admitted into the hospital at La Pitié; and of this number 103 went out cured, 176 remain under treatment, and 313 died. During the first week they presented in mass with vomiting, diarrhoea of very fluid white discharges, cramps in the arms, colic pains, hollow eyes, icy cold of the head and arms, violet tint of the face and hands, thready or insensible pulse, and extinct voice. Afterwards this assemblage of symptoms was no longer observed in so large a proportion. Blueness and chilliness were wanting in many of those admitted the last week. Some had only profuse exhausting diarrhoea with the choleric characters. Some were distressed by nausea and cramps, and had a bluish tint. Others colliquesced under profuse sweating, which was occasionally cold and clammy. Some with expressive look, complained of acute tenderness of the epigastrium, and burning heat all over. Lastly, in this as in other hospitals, we saw cases which proceeded at once to the highest degree, and in all intermediate shades; and it is impossible to distinguish between the cases of genuine *cholera* and the choleroid. Many persons, after undergoing the first period for five or six days, became victims of the second,—showing that they are probably only different degrees of the same disease.

As to predisposing and exciting causes, and hygienic conditions, we have nothing definitive or conclusive. Old men, valetudinarians, drunkards, ill-clothed and ill-fed subjects, who at first afforded so many cases, were soon accompanied in their calamitous attacks by persons of every age, and of all constitutions, who, without being in affluence, observed, nevertheless, substantial regimen, and led regular lives. They came from the best situated streets, (*la rue Copeau, la rue de Boulanger,*) as from the most unhealthy. They were of all professions. Women, who formed only a fourth part at first, terminated in a much larger proportion. We had only three patients between eight and fifteen years; and at this date, (17th of April,) we have all the varieties enumerated above. The livid tint is not so rare as some persons have asserted; and four cases of six received

yesterday presented it in the highest degree. One person, though with all the other symptoms of severe *cholera*, has only *nausea*. A woman who had merely vomiting and cramps, without diarrhœa, died, nevertheless, this morning after thirty hours of illness. The number, however, of those who have only profuse discharges, slight cramps, without lividity or extinction of the pulse, and who recover, has sensibly increased for some days.

Patients die at two distinct periods. Either struck as if with lightning they die in agony before reaction, or heat indicates the return of the circulation; or after being painfully rescued from the first state so far as to seem out of danger, they relapse either into stupor with depression, or into delirium and adynamy, then linger a few days, and perish like others in defiance of the most varied modes of treatment.

One patient of this class having ceased to vomit, to be purged, and to suffer, having got rid of the blue colour and cadaverous look for two days, fell into a state of *coma vigil*, without delirium and raving, and without dry mouth, and died at the end of forty-eight hours without other symptoms. Another, after three days of improvement, died as if suffocated by œdematous *angina*, though the throat presented no change. A third case, which seemed for two days to be convalescent, was on the third day in a state of listlessness, of stupor, and agitation, which only ended with death in the evening. Lastly, they seem to be stifled under the influence of violent congestion, either of the brain, or of the lungs, or of some other organ.

In the first period, the tongue may be pale, smooth, nearly natural in some, and covered with grayish or yellowish thin fur in others. After reaction it may be slimy and whitish, red and punctulated on the edges, grayish, black, yellow and moist,—or unchanged. It is crusted and parched in a small number.

The necroscopic appearances are pretty uniform. In most subjects the mucous membrane of the digestive passages is punctulated with minute ecchymotic spots, more or less approximated in its whole tract, and it may present large patches more or less intensely red, occasionally approaching to dark crimson. On Tuesday and Wednesday, for instance, I found in three subjects the stomach as black as coal, from the *cardia* to the *duodenum*, less so at the small arch, more at the large *fundus*, while neither washing nor friction could diminish this tint, which was without evident thickening or softening of the tissue. The blood appeared fixed in the capillaries, and the whole membranous surface was ecchymosed on the free margin of the *rugæ* as well as on their intervals. Great part of the small intestine presented the same appearance; but the colon was scarcely changed.

In others, though coloration was almost entirely deficient, the mucous membrane could not be termed sound. Its *villi*, thicker and more prominent, gave it a strongly-marked villous character, though it was whitish, of a dull white, or merely dotted red. The red or bluish tint appears, all other circumstances being equal, to be deeper as the body is inspected later after death. The Peyerian glands were developed without manifest change. The lymphatic glands were unaltered; the system of the portal vein much obstructed. The bladder was empty and shrivelled; in one case only was it distended: and in other respects sound. Engorgement and sometimes *emphysema* of the lungs, *ecchymosis* of the heart, and black blood in its chambers, and more serous fluid than usual between the folds of the vertebral arachnoid, and in the cerebral ventricles and subarachnoid tissue were the other most ordinary appearances. The contents of the intestinal tube are well known.

The Hospital of St. Louis received many choleric cases, which were at first admitted in two wards, but which were afterwards dispersed in all the divisions. Here, as elsewhere, very opposite methods of treatment were followed with nearly equal degrees of success.

Albert, regarding *cholera* as a pernicious intermittent, after the example of Ford, who made it a particular species, gave sulphate of quinine in grain pills every hour, *cinchona* wine in spoonfuls every half hour, and *cinchona* glysters,

with external warmth. The actual advantages of this method are not known, as it was soon modified by combining it with the preliminary exhibition of ipecacuan, when it is said to have been very successful.

M. Biett, who had the charge of a ward of twenty-eight beds favourably arranged, well-aired, and abundantly provided with the means of attendance, has treated a considerable number of choleric cases, the total amount of which, however, is not yet given. Adopting the idea of miasmatic poisoning as the cause of cholera, this physician administered internally charcoal in doses of half a drachm every hour, with the effect of checking the diarrhoea, and exciting the flow of bile, but not greatly controlling the cramps and vomiting. He states, also, that he has given the subnitrates of bismuth in doses of six or eight grains every two hours, with the effect of controlling the cramps. Calomel and opium was given in a few cases. In cases of local congestion, blood was drawn by cupping from the ileo-cæcal region, and by leeches from the anus. Of nineteen cases, thirteen are said to have been cured; but the precise mode of treatment is not given.

M. Gerdy, second surgeon of this hospital, received from the 6th to the 14th of April 103 cases; and of these 20 died at the close of a few hours, and consequently could not display the effects of treatment; 16 died after one or more days of treatment; 23 went out cured; and lastly, 44 were still in hospital at the date of the report, and among these many truly convalescent. The number of deaths rose to about one-third of the whole,—a smaller proportion than elsewhere, and less still if the number of deaths be reduced by deducting those who expired without any treatment. The mortality is then 1 in 5 or 6 cases.

The first twenty-seven cases were admitted at the most severe period of the epidemic, all with vomiting, pain of the epigastrium or belly, frequent stools, suppression of urine, feeble or extinct pulse, violence of the face and extremities, coldness, and cramps. The subsequent group rarely offered this assemblage of symptoms, which then occurred separately or successively; and though the disease was less violent, many still died in some hours, eleven, in short, of twenty, or more than a half.

Viewing the disease as a species of *asphyxia*, produced by affection of the nervous system, M. Gerdy employed friction by an irritating, but not vesicating liniment, to recal heat; large blisters along the vertebral column to stimulate the organs of the nerves, and excite respiration and circulation, sinapisms for revulsion and allaying cramps; starch opiate clysters to obviate diarrhoea; in a few cases blood-letting to controul congestion; and lemonade, pectoral ptisan, or sugared Seltzer water for drink. These means have in general fulfilled the indications proposed.

Hopital St. Antoine, Hopital des Enfants, Hopital des Veneriens, Hopital Necker, &c.—The choleric cases admitted at St. Antoine were numerous, and were placed under the care of the physicians, MM. Kapeler, Mailly, and Guerard, and of Professor Berard, the surgeon of the institution.

M. Kapeler administered at the onset of the epidemic, laudanum, laudanum and ether in mixture, cinchona clysters, with laudanum and extract of rhatany, dry aromatic frictions or sinapisms, and external heat. This mode of treatment was followed by speedy cures, and also violent attacks of cerebral congestion, which rapidly destroyed convalescents. Neither blood-letting nor leeches controlled the symptoms. Opium was then abandoned. The tepid bath, stimulated with two pounds of soda or potass, followed by thirty drops of laudanum, were soon followed by heat and transpiration. In cases of deep collapse, an etherated camphor mixture was given by the stomach, and camphor was thrown into the intestines; and a terebinthinate camphor liniment was actively rubbed on the person. Sulphate of quinine and cold affusion are said to have been used without benefit.

M. Mailly, who gave little opium except at the onset, employed acetate of ammonia, etherated syrup, and infusion of peppermint in the cold stage; and

congestion he opposed by leeches and temporary blisters. By these means several cures were effected. Of 70 cases admitted into the St. Paul and St. Cecilia wards under his care, between the 1st and 6th of April, 14 were completely cured, and since this period, the success has been greater.

Hopital des Enfants.—In Paris, as in every other place, the number of children attacked has been inconsiderable. At the Hôtel-Dieu, to which the first patients, without distinction of age or sex, were brought, they received only 16, ten boys and 6 girls, and only two were about 5 or 6. At the Enfants Malades, on the 18th of April, the number of choleric cases amounted only to 87, 40 boys and 47 girls. The total deaths were 43, and the majority of these children were from 4 to 5 years or more. At this time of life, as in old age, reaction is not established, and *asphyxia* quickly cuts off the patients. Among the children above 7 or 8, the deaths are in the ratio of 1 in 3. In these subjects much is to be dreaded from the effect of cerebral congestion, which is speedily fatal.

M. Guersent employs in the chill period revellents to the skin, and stimulants internally; during reaction he applies leeches to the epigastrium, or behind the ears, emollient cataplasms and mild liquids for drink. Against typhoid symptoms, if they subsequently appeared, he gave *cinchona*, claret or Alicant wine, and blisters to the nape of the neck, or the occipital region.

MM. Jadelot, Baudelocque, and Bouneau, to each of whom one of the divisions of this hospital was intrusted, employed analogous means, and also used ipecacuan, calomel, the boric acid, &c.

Between the 6th and the 13th of April inclusive, forty-five choleric cases were brought to the Hopital des Veneriens, and under the care of M. Ricord, who ordered frictions along the spine with a very volatile liniment, the cramps were almost always allayed. None of the patients of this hospital under the actual use of mercurial frictions, were attacked by *cholera*, and it was even remarked, that few persons labouring under syphilis were overtaken by the disease; and, though several facts disprove the preservative influence of the latter power, it may subsequently become a subject of inquiry to what extent these conditions protect from the choleric invasion. M. Velpeau also employed mercurial frictions from the commencement of the epidemic. M. Jules Guerin, having observed that all the workmen employed in the preparations of mercury were exempt from cholera, thought that the mineral might be advantageously employed in curing the disease; and, with the view of enabling it to operate, he proposes previously to administer ipecacuan, in order to effect a reaction favourable to its influence. Mercurial friction on this principle has been followed by favourable results in cases apparently desperate. But these are too few and too vague to justify much confidence.

At the Hopital Necker, MM. Bricheteau and Delarrouque treated many patients from the adjoining districts; and many cases were supplied by the Gros-Caillou, Vaugiraud, Grenelle, and Mount Parnassus. In these populous districts it must be further observed, the women were attacked in much greater numbers than the men; and the admissions at the Necker presented this difference from all the other hospitals. On the 15th of April, the patients admitted since the commencement of the epidemic, amounted to 236, of whom 150 had died. The treatment was founded on the particular symptoms of each patient. The physicians of this institution believe, that, do what you will, it is extremely difficult to obtain any success when the cholera patient is in the blue period, and that no means, even the most energetic, possess little efficacy. The use of the antiphlogistic method, above all, they found pernicious at this period; and, on the whole, the diffusible stimulants were attended with less inconvenience. This opinion, coming from practitioners so respectable, we willingly record.—*Archives Générales, April, 1832.*

20. *Physiological Treatment of Cholera.*—In the statements in many of the French Journals, relative to the comparative success of different practitioners,

in the treatment of cholera, manifest injustice has been done to M. Broussais. Thus it is stated, that of 292 choleric patients received by M. Broussais in his hospital, the Val-de-Grace, between the 26th of March and the 10th of April, but 5 were cured, or only 2 per cent.: that of 398 patients treated by him between the 11th and 20th of April, 45 only were cured, or 11 per cent.; and finally, that of 312 patients treated by him between the 21st and 30th of April, 42 only were cured, or 13 per cent. This is true, but it is *not* the *whole truth*. It was nevertheless more convenient to those who wished to discredit physiological doctrines, to present this view of the subject, than to exhibit it with reference to the comparative mortality—since the number remaining in M. Broussais' hospital at the period of each return, was very large, whilst in the other hospitals, this number was quite small, and as the convalescents were not thus taken into the statement, this view is entirely against those who have most patients remaining, even though all of them were far advanced in convalescence. The following table, which we believe to be official, and which at least cannot be supposed to be made too favourable to M. Broussais, since it is taken from the journal, whose editor has been loudest in his denunciations of M. B. exhibits the number treated, cured, and died, in each of the hospitals of Paris, between the 26th of March, and the 30th of April, with the number remaining under care at the last named period.

HOSPITALS.	NUMBER OF PATIENTS.				PER CENTAGE.		
	Treated	Cured.	Died.	Remain- ing.	Cured.	Died.	Remain- ing.
Hôtel-Dieu - - - -	2052	647	1204	201	32	58	10
Pitié - - - - -	778	253	405	120	33	52	15
Beaujon - - - - -	446	150	215	81	34	48	18
Charité - - - - -	985	301	568	116	30	58	12
Saint-Antoine - - - -	721	238	374	109	33	52	15
Necker - - - - -	374	100	240	34	27	65	9
Cochin - - - - -	177	64	75	38	36	42	22
Saint-Louis - - - - -	1449	451	696	302	31	48	11
Vénériens - - - - -	169	66	89	14	39	53	8
Enfans malades - - -	107	33	60	14	31	56	13
Accouchement - - -	9	3	5	1	33	50	17
Maison royale de santé	115	38	50	27	33	43	24
Enfans trouvés - - -	7		6			100	
Vieillesse - - - - -	473	93	266	114	20	56	24
Incurables - - - - -	85	20	48	17	24	56	20
Ménages - - - - -	115	37	69	9	32	60	8
Orphelins - - - - -	189	92	97		49	51	
Sainte-Perine - - -	3	1	1	1	33	33	34
Le Prince, Gros-Caillou	61	19	27	15	31	44	25
La Réserve - - - - -	541	171	192	178	32	35	33
Lazaristes - - - - -	57	4	20	33	7	35	58
Clichy - - - - -	73	7	20	46	10	27	63
Saint-Sulpice - - -	114	32	19	63	28	17	55
Bons-Hommes - - -	27	13	3	11	48	11	41
Val-de-Grâce - - -	502	92	154	256	18	31	51
Gros-Caillou - - -	369	102	207	60	28	56	16
Invalides - - - - -	166	12	135	20	7	81	12
Rue Blanche - - -	110	26	39	45	24	35	41

If we examine this table in reference to the cures, it will be perceived that the number at Val-de-Grace was less than at any other hospital, except l'Enfans Trouvés, Lazaristes, Clichy and Invalides. But if it be examined with reference

to the deaths, we shall see that the proportion of deaths was less in Val-de-Grace than any other hospital except Clichy, Saint-Sulpice and Bons-Hommes. Now these three last named hospitals were not opened during the early period of the epidemic, when the mortality was greatest, and therefore should not enter into the comparison; and this is more conclusively shown by comparing the mortality in these hospitals during the third period of the epidemic, viz: from the 21st to the 30th of April. The mortality during this period was, at Clichy, 19 per cent.; Saint-Sulpice, 12 per cent.; Bons-Hommes, 20 per cent.; whilst at Val-de-Grace it was only 5 per cent. It is thus manifest that the mortality at this last hospital was less than at any other of the Parisian hospitals; and if we take the proportional mortality during the first period of the epidemic, when stimulants were more profusely and generally used in the other hospitals than subsequently, this will be still more striking. Thus, during the period alluded to, viz: between the 26th of March and the 10th of April, the mortality was as follows:—Hôtel-Dieu, 55 per cent.; Pitié, 47 per cent.; Beaujon, 41 per cent.; Charité, 51 per cent.; St. Antoine, 50 per cent.; Necker, 63 per cent.; Cochin, 40 per cent.; St. Louis, 38 per cent.; Vénériens, 30 per cent.; Enfants Malades, 35 per cent.; Accouchement, 75 per cent.; Maison royale de Santé, 52 per cent.; Vicilleuse, 47 per cent.; Incurables, 42 per cent.; Ménages, 24 per cent.; Orphelinus, 8 per cent.; Gros-Caillou, 53 per cent.; Invalides, 74 per cent.; Rue Blanche, 35 per cent.; whilst at Val-de-Grace it was only 20 per cent.

The difference of aspect which this subject presents when viewed with reference to the cures, or to the deaths, is owing to the number of patients remaining under treatment being much greater in some hospitals than in others; and in Val-de-Grace the proportion was greater than in any other hospital, except Lazaristes, Clichy, and Saint-Sulpice, three temporary hospitals, in which but few patients were treated, and as they were therefore probably never crowded, there was no necessity for dismissing the patients early in convalescence.

Now, though the actual proportion of deaths and cures can only be determined by the ultimate fate of those remaining under treatment, yet as in the meantime it is interesting to determine which of the two views we have alluded to is the most just, it will be interesting to inquire into the condition of these patients remaining in hospital, and whether it is the number of deaths or cures that they are most likely to augment; if the deaths, the proper view of the subject is that which we have criticised and which is most unfavourable to M. Broussais; if, on the contrary, these patients are to be added to the number cured, the proper view is to consider the proportional mortality. It appears from the tables we have before us, that the number of patients treated at Val-de-Grace during the first period of the epidemic, was two hundred and ninety-two, of whom five were cured, and fifty-eight died, and two hundred and twenty-nine remained under treatment; being 2 per cent. cured, 20 per cent. died, and 78 per cent. remaining. Now it is well known that the course of cholera, when fatal, is a very short one, and therefore if those remaining from the first period under treatment, were not convalescent, the proportional number of deaths during the next period must be increased, and the same as respects the third. But the tables show this not to have been the case in Val-de-Grace; thus, during the second period of the epidemic, of three hundred and ninety-eight patients treated, of whom *two hundred and twenty-nine* had remained from the first period, only *eighty-two* died, or but 21 per cent.: and further during the third period, of three hundred and twelve patients treated, of whom *two hundred and seventy-one* had remained from the preceding periods, only *fourteen* died, or but 5 per cent. It thus seems more than probable that the patients remaining were convalescent. But it will be asked, how is it that the proportion of patients remaining in the hospital of Val-de-Grace was so large? If we advert to the fact of Val-de-Grace being a military hospital, that patients are not considered as cured

* This small mortality seems to have been owing to some accidental circumstance, as during the second period of the epidemic it amounted to 49 per cent., that at the Val-de-Grace being but 21 per cent.

until dismissed, and that they are not discharged until fit for duty, and that convalescence is tedious and protracted in cholera, we have a solution of this question. That it should be larger than in the civil hospitals is satisfactorily explained by the circumstance of patients being usually discharged from such hospitals early in convalescence, and this was especially necessary in Paris during the prevalence of cholera, when the civil hospitals were crowded, and demands for admission so numerous that it was necessary to dismiss the convalescents as early as possible to make room for those recently attacked.

It then appears, if the view we have given of the subject be correct, that the success in the treatment of cholera at Val-de-Grace was greater than in any other hospital of Paris.

30. *Proposal to Administer Salines in Cholera by the Natural Process of Absorption and Assimilation, instead of Injecting the Veins.* By T. M. GREENHOW, M. D. of Newcastle. (To the Editor of the London Medical Gazette.)—SIR,—If I saw any good reason for believing that either new light had been thrown upon the nature of cholera, or any material improvement had taken place in the method of treating that formidable disease since its first visit to this place, I should not have troubled you with this communication; and it is only from a conviction that many hazardous experiments are constantly made use of in the treatment of a disease which, under the most judicious and philosophical management, is too often necessarily fatal, that I am induced again to endeavour to draw the attention of my professional brethren to the necessity of accurate reasoning, and of forming distinct and definite indications of cure, while prescribing for cholera patients. But it will probably be maintained by the advocates of the favourite practice of venous injection, that it is founded upon accurate chemical analysis and strictly philosophical argument—that the immediate effect of the disease is to deprive the blood of its watery and saline constituents, and that the most obvious remedy must therefore consist in replacing them with similar materials. But granting, for a moment, that it were possible thus directly to restore the deficient principles of the circulating medium, (though perhaps a more direct method still would be to inject into the veins the matter discharged from the intestines,) is it philosophical to suppose that we can thus remove the diseased action by which its qualities have been so remarkably altered? If even we could succeed in bringing the circulating mass to the condition in which it was at the commencement of the disease, it by no means follows that the diseased action which *has* already *will not* again deprive it of its defective parts. But how different is the process we pursue from the more elaborate one by which the blood has been originally formed! Compare it with the mysterious processes of chymification, chylicification, assimilation, and gradual admixture, and how crude and imperfect must it appear! The whole theory, too, of injecting the veins, must depend, for its consummation, upon the matter introduced becoming intimately mixed with the black, tarry, deteriorated blood which remains in the vascular system: but how is this to be accomplished? How often must it run the round of the circulation, vigorously impelled, before such a thorough combination of two heterogeneous fluids can be brought about? Forgetting, for an instant, the desperate nature of the disease for which this desperate remedy has been suggested, and considering it in the abstract, what effect should we expect to result from it? I would answer, precisely the effect which it has been found actually to produce—a temporary stimulation of the action of the heart and arteries, to be soon followed by painful oppression, and, before long, its complete extinction. I repeat, that, reflecting upon the probable result, such would have been the anticipated, and such have been the actual consequences, of injecting large quantities of foreign unassimilated matter into the veins. Of course I speak of the general rule, for the few exceptions that have taken place are but to be considered as anomalies—remarkable ones it must be confessed, and well calculated to excite attention and give rise to interesting inquiry; but they are too few to warrant a general

pursuit of the practice, and the recoveries which have taken place ought more properly to be considered as having occurred *in spite*, than in consequence, of the treatment.

For the truth of the preceding remarks, I need only refer your readers to the various cases recorded in the late numbers of your own journal—temporary amendments followed by a more speedy death than would otherwise probably have taken place, is the history of nearly all; and I must think the exceptions are fewer than would have taken place under a different plan of treatment. But though it appears to me that a wrong application has been made of the knowledge which we have attained, (through the labours of Dr. O'Shaughnessy in particular,) of the chemical alterations sustained by the blood in the course of an attack of cholera, I am very far from undervaluing such information: on the contrary, I consider it as affording a very useful indication in the treatment of the disease; and if the crude notion of supplying the deficient materials immediately to the circulating mass appear to me unphilosophical, far otherwise is the intention of introducing it through the medium of the absorbents and assimilative process. Such an indication may, with strict propriety, form a part of a rational and philosophical plan of cure. But it may be asked, how can it be accomplished? I answer, by introducing into the stomach and intestines the same matter which has been so profusely thrown into the veins. Four pounds of warm water, with saline and alkaline substances in solution, may be injected at one time into the intestines, and large quantities of gruel, salted to the taste of the patient, may be drank with little or no hazard of being rejected, especially if the gastric and intestinal irritation be previously allayed by a dose of calomel and opium. This fact I have satisfactorily put to the test three several times during the present week. The first patient, (a man about sixty years of age,) in whom the vomiting and purging of enormous quantities of rice water had gone on for seven hours, whose extremities were blue and wrinkled, and whose pulse was totally imperceptible, rallied to such an extent as, but for his advanced age, (which I consider a perfect barrier to recovery in such severe cases,) would have warranted good hopes of success; and in the other two, (both females,) whose cases were less severe, though sufficiently marked, convalescence has been the result. I would suggest, therefore, in addition to the principles of treatment which it was my endeavour to establish in my lately published Essay on Cholera, that the deficient ingredients of the blood—those which have been removed by the profuse discharges which characterize the disease—should be supplied to the circulation, not by direct injection into the veins, but through the natural processes of absorption and assimilation. As I conceive it is the direct tendency of the treatment recommended in the work referred to, to restore organic function, I cannot consider it a valid argument against this practice that no such processes as absorption and assimilation can go on during the continuance of the deranged action which constitutes the disease. It is true that our attention must be directed to the twofold object of checking this action and of restoring the havoc it has made on the stamina of life: the first may be done with considerable certainty; but in the second appear difficulties which I fear neither the venous injections nor the substitute I suggest, will be able always to overcome.

31. *On Cold Affusions in the Treatment of Cholera.* By WILLIAM AINSWORTH, Esq. —One of the physicians of the Cholera Hospital at Berlin, in writing upon this subject, says, "in those living corpses which are struck with asphyxia, lying cold and without any pulse, external and internal stimuli cease to be so, inasmuch as the debilitated asphyxiated frame cannot in its turn act upon them: no steam apparatus, however vaunted, no warm bathing, no friction, no excitement, is sufficient in these cases." And this is what I am sure every person who has seen the disease will coincide in. Though produced from internally outwards, and not externally acting inwards, *asphyxia pestilenta* bears a strong relation to death by frost, in which there is an icy coldness of the surface, a

want of pulse, and great congestion of the central parts. In these cases we use frictions of cold snow, &c. until a gradual warmth is restored; and it is on the same principle that sudden cold affusions are indicated in cholera. So forcibly did this strike medical men in this country as a neglected remedial measure, that when the *Berlin Cholera Gazette*, which contained the notice of its successful employment, was made known, every writer was anxious to show that he had himself previously advocated its adoption.

The patient is placed in an empty and dry bathing vessel or tub, and several buckets of cold water are poured on him, while the regions of the stomach and back are subjected to a kind of shampooing or friction; and this process must be repeated if the urgency of the circumstances requires it. No physic is given, and cold water is allowed for beverage. If the pulse revives, the affusions are continued in a tepid bath, and the patient is put to bed, where perspiration is excited by gentle frictions with cold flannels. It must be kept carefully in mind, that cold affusions are only applicable to the second period of the disease, and not to the first; and it is not a universal remedy, but can only be used in particular cases. To secure the convalescence of the patient, it is only necessary that he should be carefully watched, and all symptoms of returning heat and vitality, or recurrence of the usual secretions, be assisted by the exhibition of warm restoratives and gentle aperients, taking care to avoid local inflammation.

MISCELLANEOUS.

32. *Medical Attendance ought not to be Gratuitous.*—"The daily occupation of the medical man is at once the work of public humanity and of personal profit. His task and duty is to do good, to stand by the sick, to cheer the conscious sufferer from vicious indulgence, and to administer solace to the mind, and ease to the body. In the day of battle, the medical man endeavours to save the life which the soldier destroys; and when a national pestilence is abroad, the medical man is chiefly exposed to the pest while watching and learning its nature and treatment. He always performs the work of charity, because he gains his daily bread by being charitable.

"A false notion is now afloat concerning the humanity of medical men. While a disease is threatening to infest our capital, public authorities are wisely convened to forestal and prevent its ravages among the dark and dirty dwellings of the poor; and the poorer people are cleansed and cheered according to the active and diligent instructions of their alarmed superiors. A general feeling of humanity is produced and enforced by private apprehensions. Sobriety, one of the first of Christian virtues, is now proclaimed, not by the voice of wisdom, but by the shout of calamity. In the discharge of this novel duty, the medical man is called upon to take his part; but his part is to be discharged, not in anticipating the arrival of the disease, but in meeting it when it is arrived. He is to hold himself in readiness to rise by night and by day, to enter the houses of the poor, to detect, to touch, to handle, and to treat, a loathsome sickness, and to lean over the bed, or to tarry by its side, till safety or death shall have ensued. If there be any contagion or infection, he is exposed to the baneful influence; if there be any hazard of health, he is open to the obvious danger. We doubt not the moral energy and the professional avidity of any medical practitioner in the encountering of a new disease; the eagerness with which the philosophic physician would hasten, any hour, to survey, perchance to understand and to cure a spreading evil fatal to the lives of men; but no man is justified in wantonly exposing his person to mischief; and every master of a family is bound to consider those who depend upon him for support. The danger may be adventured upon, but only with a prospect of a fair remuneration; and those authorities which require the medical man to serve for nothing, dictate an act of humanity

to be practised only according to the feelings and the means of the individual dictated to. A medical man's time and judgment are purchaseable articles; and they are, like bread and wine, to be purchased in all seasons, both of prosperity and of national adversity; since humanity is exhibited, not by acting for nothing, but in doing to the utmost what is right and proper, in the hope of a legitimate reward. They who do less than this, are inimical to themselves and to the common weal; for how shall society be held together if mutual advantages be not considered? The medical man must support himself by his labour, and he will soon cease to be able to act gratuitously if his labour do not supply him with the means to live.

"But suppose there be no danger of infection, and that the disease were curable by a touch, nevertheless that touch, and that exertion, without hazard, is still worthy of a just reward. So that, if the poor are to be attended gratuitously, let the medical man act for himself, as he frequently does act, without ostentation, by giving, if he choose, his advice and his medicine as a free gift, merely with the hope of doing good.

"These observations are presented to your notice, because some parishes have called upon medical men, and some medical men have voluntarily offered themselves, to act upon a principle of bald humanity—a humanity which is to be exercised according to the authority of a vestry. And it appears to me, (perhaps I am sordid,) that in exact proportion as we are called upon to do more, so are we worthy of a higher pay; and that when our rest and our health are to be exposed and broken, we are not justified in promising our services without the certainty of an appropriate remuneration. Money we desire for ourselves indeed, but more for those who live by our exertions. Money is the source of subsistence. The days are gone when we might pluck, and live with ease and pleasure, from the tree of life; and in England a man will be arrested for nudity, if he have not money to clothe himself withal. The profit to be expected from an extension of name and reputation, is remote and vacuous; and that policy is truly fallacious which places the well-being of an individual or a nation not in immediate, but in a prospective good; since who can foresee or controul the adverse rise of intermediate circumstances?

"Having advanced the principle upon which I, as a man, expect the just remuneration of my services, I am not ashamed to say with Horace—"*querrenda pecunia primum est.*" I would not let my ear be deaf, nor my eye blind to the sight and the sound of genuine poverty; nor would I spare my best exertions to alleviate the afflictions of the unfortunate, the wretched, and the debased; the knot of my purse can be loosed to give as well as to receive; and I should blush indeed if my hand were not sometimes open to bestow as well as to accept. I have learned, from the practice of my profession, the pleasure of doing good; and I only demand for my exertions, especially public exertions, those pecuniary supplies which may still enable me to practise and to study medicine, to support my family, to benefit my friends, and to give to all those who in the hour of need I know will be relieved and comforted by the silent gift of benevolence."—*London Medical Gazette*, Dec. 24th, 1831.

33. *On the Epizootic Disease at Choisi-le-Roi.** By M. CARRERE, late Interne des Hôpitaux.—During the disastrous progress of cholera in Paris, the village of Choisi-le-Roi, while perfectly free from the epidemic, was the scene of an epizootic disease, of which domestic poultry were the only victims. In the history of many other epidemics, we find coincidences of this description, of peculiar diseases affecting the lower animals, while pestilences were decimating mankind. Sometimes horned cattle, at other times horses, have been especially attacked; but there have not been recorded more than two or three examples of epizootics among birds. Chabert and Boronio have, it is true, described some diseases of birds, observed in France and in Lombardy, but the characters of the affections they describe, are totally different from those observed at Choisi.

* Choisi is situated about five miles from Paris on the banks of the Seine. It is considered a remarkably healthy village.

The cholera had scarcely appeared at Paris, when it was generally reported that a disease of most destructive mortality was raging among the poultry throughout the commune. Here, as at Paris, the cry of "poisoning" was loudly made; all persons who were persuaded that the food and drink of mankind were mixed with poison, found no difficulty in convincing themselves that similar villany was practised in the poultry yards. But the mortality soon reached such a pitch, that this idea was abandoned, and then it was generally reported, that the cholera was the cause of the epizootic.

Wishing to arrive at the source of these rumours, I learned, that since the 3d of April, a vast number of fowls had perished in several houses situated in different quarters of the hamlet. During the first days of the disease, the number of deaths had been very considerable, after which period, the birds were killed by the owners on the occurrence of the first symptoms. In one fowl-yard, of eighty cases, one or two alone recovered. Many remedies, amongst others bleeding under the wings, had been in vain resorted to. *A considerable quantity of the diseased fowl had been eaten by the inhabitants without any bad effect.*

The causes of this malady appear to me altogether unknown, and I saw no reason for supposing it to be contagious. Nevertheless, when a single death occurred in a fowl-yard, the mortality only ceased when it had no more victims to destroy. The most cleanly poultry feeders suffered as severely as the most filthy. The kind of food had no influence on the disease. The fowls at large in the streets of Choisi were attacked with equal severity with those perpetually confined or occupied in incubation. *Rabbits, geese, and ducks, however, lived with impunity in the same yards where the hens were universally perishing, and three turkeys only were affected.*

The disease, generally speaking, commenced in the morning. The hens were noticed to be dull and weak, their wings drooping, and their crops distended with undigested food. In a few cases the disease commenced during the day, and lasted four-and-twenty hours. The respiration was short and hurried, the motions of the heart accelerated, and diminished in force in proportion to their increase in velocity. In almost every instance there had been numerous whitish, liquid dejections. The gullet was distended with thready mucus, which escaped from the beak. The combs were of a livid red colour, and the tint deepened to a violet as death drew near. After the disease had lasted from two to five hours, convulsions usually finished the sufferings of the animal, and death was rapid in proportion to the quantity of the evacuations. In many cases I have learned, that the coldness of the sick birds was very remarkable. A few recoveries were noticed towards the termination of the epizootic. As far as I can find out, about five hundred fowls died of the disease, or were killed in consequence of the development of its symptoms.

After death, the colour of the skin was the same as in fowls strangled without being bled. The bodies were warm for at least three hours, and the cadaveric rigidity was very remarkable.

I have taken much pains in seeking for any pathological alterations which might explain the cause of the disease, but my research was quite in vain. The brain was white, and free from congestion. The heart was bloodless, and of its usual consistence. The aorta contained fluid blood. The lungs were rosy and crepitating. The mucous membrane of the œsophagus frequently showed little papillæ, surmounted here and there with a white point, like a minute grain of sand, adhering to the centre of the papilla. The crop always contained food; the gizzard was strongly contracted; the intestine presented occasional reddish patches, especially in the situations where little parcels of worms were found. The liver was gorged with black and tarry blood; the gall-bladder distended with thick green bile.

This epizootic is quite different from the "*maladie charbonneuse*" of Chabert, and from that described by Boronio. Neither has it any analogy to the "pip," for the tongue was always in a natural state.—*Journal Hebdomadaire.*

AMERICAN INTELLIGENCE.

Case in which a Large Dose of Camphor was Taken.—By G. EICKHORN, M. D. (Communicated in a letter to Dr. Hays.)—I have read this morning in the sixth volume of your Journal, page 236, a notice of a case in which a large dose of camphor had been taken, and as I have had an opportunity of experiencing in my own person the effects of such a dose of that article, and as the results in my case differed in many respects from the one you have noticed, a narrative of the symptoms I experienced may not be uninteresting.

In 1817, during the wet month of November, (in Germany,) I was attacked with cold in the head and a severe cough. One evening I took a lump of camphor, about the size of my thumb, and rubbed it down with sugar, with the intention of taking a little of it occasionally, and left it in the mortar covered with a sheet of paper; it was about 6 o'clock, I sat alone, and being unable to read, because my eyes were swimming in tears, time passed very tediously, and I therefore took without reflection, from time to time, a tea-spoonful from under the cover without lifting it, till about 9 o'clock, when I perceived the mortar almost empty; I had taken at least two-thirds of the whole. The idea then rushed to my mind that I had perhaps poisoned myself; but as I did not feel any ill effects, I resolved to wait till such symptoms should ensue as might call for interference. I accordingly went to bed, taking with me laudanum and diluted sulphuric acid. I had not been half an hour in bed before I began to feel warmer and warmer, till I experienced a burning heat, and at the same time my heart throbbed more and more frequently till it was impossible to count the pulse, but unattended with any uneasiness in the head. I never felt better; never were my ideas more lively or clearer; it appeared as if my intellectual powers were increased, and certainly champagne never brought on a more pleasing intoxication. In this situation I passed about an hour and a half, or two hours, when my skin began to grow moist; soon after my pulse became slower, and I fell asleep. The next morning I awoke miserably weak, the sweat having penetrated to the lower side of the feather bed, and my shirt and clothes were drenched. My cold and cough were just as the evening before. I took a lump of camphor about the same size, and found it to weigh nearly ʒiij., and supposing the powder left in the mortar to have been the third part, I had taken ʒij. or 120 grains.

The difference between the two cases as to the symptoms, is indeed, great; in the case at Breslau the pulse was hard; in mine this did not occur, and the frequency was so great, that I cannot conceive how the pulse could have become hard; then in the case alluded to, the pulse was full; in mine it was small in accordance with its frequency; there was heaviness of the head; my head felt rather light; anxiety and agitation was experienced in the other instance; I have never felt more exhilarated and comfortable; the individual at Breslau suffered violent heat in the stomach; I did not experience any uneasy sensation in that organ; and as to the senses, I remember only that I could perceive the pulsation of the arteries in the ear, but without any disagreeable sensation. I do not recollect any derangement in the function of the bladder, and therefore suppose there was none. The difference in the symptoms may be accounted for by my having taken the camphor unmix'd with any article capable of modifying its effects, whilst by the individual at Breslau the substance was taken dissolved in four ounces of brandy, to which last article I think many of the symptoms are to be ascribed.

New Orleans, March, 1832.

Description of an Instrument for Excision of the Tonsils. By WILLIAM B. FARNESTOCK, M. D. of Lancaster, Pennsylvania.—This instrument, which I denominate the sector tonsillarum, consists of a piece of steel six inches long, and about one-fifth of an inch in thickness, neatly rounded and polished, with a small hole passing longitudinally through its centre. One end terminates in a ring about one-eighth of an inch in thickness, and one inch in diameter. The ring is split, or divided into two equal parts, which split or division extends one inch down the stem, for the passage of the knife hereafter to be described. There are two projections on the stem, one close to the ring, and the other about three inches below it, through which are small holes for the passage of the needle.

The needle is about four inches in length, and works through the two above-named holes, on a flattened surface on the stem of the instrument.

The knife consists of a flat steel ring, which fits in the split of the above-named ring, with a stem of such dimensions as will pass through the longitudinal hole in the instrument. To the end of this stem is affixed the handle. This will be better understood by reference to the accompanying drawing, which represents the instrument one-third the proper size. For the purpose of exhibiting the different parts, the circular knife is partly drawn down as in cutting, and the needle pushed up some distance.

A, A.—The stem of the sector.

B.—The ring.

C, C.—The projections on the stem, through which are holes for the passage of the needle.

D.—The needle.

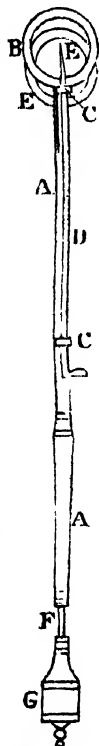
E, E.—The circular knife; the internal and upper half of which is sharp.

F.—The stem of the circular knife, to which is affixed the handle.

G.—The handle.

Mode of operating with the sector tonsillarum.—If it be the left tonsil that is to be removed, depress the tongue with the forefinger of the left hand; introduce the sector, pass it over the tongue, with the needle side upwards, and as the tonsil is approached, so turn it, that the needle looks towards the right side of the mouth. Apply the ring over the tonsil, and with the thumb or forefinger of the left hand, pass the needle through the base of the gland. Now incline the stem of the sector a little towards the right side of the mouth, or in a line with the angle of the jaw, and excise.

When the right gland is to be removed, the mode of operating is reversed.



On Large Doses of Quinine in Atmospheric Fevers. By H. PERRINE, M. D. (Extracted from a letter to Wm. P. Dewees, M. D.)—Labouring under the symptoms of *cholera* on the eve of my expected return to Campeche, I cannot depart from this *stage* or *state* without renewing my testimony of the great virtues of the sulphate of quinine. I commenced the practice of medicine in Illinois, in the fall of 1819, continued it in that state until the spring of 1824, and in the state of Mississippi until the spring of 1826, when I embarked at New Orleans on account of my health for Cuba, and thence proceeded through Boston to Canada during the summer. The following winter was passed in this city. In May, 1827, I sailed for Tobasco, in Mexico, where I remained during the rainy season, and arrived at my consulate in Campeche of Yucatan, in November. I returned thence to Tobasco in July, 1830, and sailed from that port for this city in June, 1831, and in September last was again at Great Sodus bay in this state where I had been a short time in 1826. You will hence perceive that I have

had opportunities for medical observation in various degrees of latitude and longitude between the southern shores of our great lakes and the northern base of our Guatemalan mountains.

During the first six years of my practice I used and recommended with "gradually increasing boldness, *large doses* of the Peruvian bark, *frequently repeated* during the *paroxysms of fevers*. My communication in your Journal of November, 1826, contains my first essays with *large doses of the sulphate of quinine*. I have since had abundant opportunities of witnessing their effects in the hands of myself, of other physicians, and of *the people*. In 1827, quinine was first known in Tobasco and Yucatan, and was bought by *physicians* at two shillings a *grain*. I introduced its use in large doses during the febrile paroxysms. In 1831, it was bought by *families* at five dollars an *ounce*. Every person that adopted my practice, has never, I believe, abandoned it. I therefore *merely* claim common capacity for observation and common veracity for report in submitting very briefly a few general results of my experience.

1. The medium dose of the sulphate of quinine at any period of fever from its incipient to its terminating symptoms is *ten grains* to be repeated every *two hours*, whatever be the state of the pulse and skin.

2. It may be given without interfering with simultaneous antiphlogistic stimulant, or other auxiliary measures according to symptoms, any more than an equal quantity of James' powder. Indeed if the quinine should be shyly substituted in the paper, the physician would express his surprise at the immense sudorific and sedative powers of this new pulvis antimonialis.

3. The retreat of fever under the power of quinine as under the power of nature, is indicated by the changes of the hot or the cold skin, and of the strong or the feeble pulse towards their natural condition; and most generally by secretion from the skin, often from the kidneys, occasionally from the bowels, and sometimes from *all three in succession*.

4. The *general* disturbance of the nervous and vascular systems, called febrile, whether cold and depression or heat and excitement be the alarming traits, may be counteracted on the first day by at most six doses, or on the second by a dozen; and thus will be prevented that gastro-enteritis, a *consequence* of endemic or epidemic fever which Broussais has mistaken for the *cause*.

I have hence reason to believe that all malignant fevers, (even if called the *cholera* when their force is attracted to previously disordered bowels,) may be cut short at their commencement by large doses of sulphate of quinine; and that local disorder may at the same time or afterwards be corrected by the same means that were effectual for the same symptoms before the attack.

I am happy to see in Magendie's Formula, that large doses of quinine are administered by highly reputable physicians of Europe.

New York, June 26, 1832.

In a subsequent letter dated Princeton, N. J., Sept. 6, 1832, Dr. Perrine writes:—"The suggestion relative to the use of quinine in cholera I have had sufficient opportunities of testing during its prevalence in New Brunswick and Princeton. Dr. Taylor of the former, and Dr. Dunn of the latter place, will afford abundant evidence of its utility in the stage of collapse in union with calomel, for as I was hopeless of inducing others to rely on the quinine alone, I proposed the combination of the first dose with a *large* dose of calomel, say forty grains of calomel and twenty grains of quinine at once, and then twenty grains of quinine every hour afterwards, until pulse, heat, and reaction generally was restored. *No opium*. The secretion from the stomach and bowels were checked almost magically! Laxatives became necessary to move the bowels within twenty-four to forty-eight hours afterwards by those physicians who were anxious on that score, but for my part I was willing to let the patient perspire twenty-four hours and urinate the next twelve, under the conviction that in the ensuing twelve hours a few copious and consistent discharges would naturally occur. Where consecutive fever ensued the treatment had nothing peculiar."

On the Use of Galvanism in Cholera. By L. MUNSSELL, M. D. of Frankfort, Kentucky. (Extracted from a letter to Dr. R. La Roche.)—I have lost no part of my *enthusiasm* with regard to the subject of electro-therapeutics, but have continued to speculate and experiment, as opportunities have offered. Recent experience fully confirms the opinions which I formerly entertained, and which were so often and freely communicated to our mutual and much lamented friend, Dr. Brown.

Ever since the reception of your kind letter, it has been my intention, at some convenient season, to embody the result of my experience and views, upon the above-mentioned subject, and submit them to the disposal of yourself and colleagues. An accidental occurrence, a few days ago, in a particular manner, reminded me of that intention; and is the more immediate occasion of my writing to you at the present time. In turning over some medical works at a book store, I casually met with several numbers of the North American Medical and Surgical Journal; and in casting my eyes over the contents of No. XIX, for July, 1830, I discovered an article on "electricity and galvanism," which, upon reading, (on pages 199 and 200,) I recognised to be an extract from one of my own letters to Dr. Brown. I had been in search of something on the *cholera*, which is now the leading topic of the day—and which, I am informed, is now raging in your city.

It has all along been my opinion that galvanism, properly and timely applied, would be one of the most powerful and successful remedies in that frightful disease. The case of Mrs. T. given in the above-mentioned extract, and many similar cases which have lately occurred in my practice, induce me still to entertain that opinion: and, I confess, I felt no small degree of gratification, on reading the following paragraph in the "Genius of Temperance," published at New York, August 1st, 1832, page 1st, column 2d. Dr. Thompson Professor of Chemistry in the University of Glasgow, in an article published in the London Philosophical Magazine, suggests, that "if a current of galvanic electricity were made to pass through the lungs of those who labour under the cholera, it would revive the energy of that organ, and enable it to induce the requisite quantity of blood." Now, as the disease is prevalent in your city, and as all other modes of treatment hitherto adopted have proved unsuccessful in a majority of cases, would it not be well to give galvanism a trial? I presume your hospitals will afford opportunities for extensive and fair experiments; and I feel quite solicitous that they should be made. I regret exceedingly that my situation is such that I cannot, without great inconvenience, make a visit to your city for this express purpose. If, however, you or either of your colleagues, or any of your medical brethren, should think proper to try the experiment, (which, to say the least of it, will be safe and harmless, even if it do no good,) I will detail the process which I would pursue, were a favourable opportunity to be presented to me.

In the first place, I think the *construction* of the battery of some importance. I have tried all sizes, from plates of six inches square, to those of one inch; and I find that plates two and a half inches square answer the best for medical purposes. A series of twenty double plates, (zinc and copper, well soldered together at the upper edges,) of that size, carefully cemented into a mahogany trough constructed on the plan of Cruikshank's, and mounted according to Dr. Hare's improvement, as described in Mitchell's edition of Faraday's chemical manipulation, page 484, (note,) forms a convenient battery for ordinary use, and will be found sufficiently powerful to be borne by most patients. It would be well, however, to construct the trough for a series of thirty or forty pairs of such plates, as it may be necessary, in some cases, to increase the power to that extent. The space between each pair of plates ought to be at least half an inch, otherwise the acid mixture for charging will be too soon exhausted of its strength. Great care should be taken that the cementing be *perfect*. I have been in the habit of using a cement made of five parts of rosin, four of bees-wax, and two of pulverized red ochre, and pouring it while hot into the troughs,

after the plates have been carefully arranged and fixed in the grooves; so that the sides and bottom of the trough between each pair of plates may be completely covered with the cement about one line in thickness; thereby securing a perfect insulation of each pair of plates. In each extreme cell, also, the wood should be completely covered with the cement. After the cementing is finished, the troughs should be well varnished with two or three coats of good copal varnish. Small silver wires, three or four feet long, for conductors, may be prepared by attaching a leaden ounce-ball to one end, so that it may readily sink in the cells and keep its place; and the other end may be armed, (to insulate it for holding between the fingers,) with a tube made of a large goose-quill by cutting off the ends, fitting a piece of cork into each, and then thrusting the wire through them so that the end will project about one inch: or some of the melted cement may be poured into the quills to secure the wires in the centre, instead of the corks. Two thin, circular plates of silver, about the size of a dollar, with six or eight small holes perforated near the margin for the purpose of sewing on some thick woollen cloth, or a flat piece of sponge, should next be prepared. The battery may then be filled, to within half an inch of the tops of the plates, with a mixture of muriatic acid and water in the proportion of one part of the former to fifteen or twenty of the latter. I have found this mixture preferable to any other for medical purposes.

Thus provided, when called to a patient with the cholera, I would apply one of the silver plates to the nape of the neck, and the other to the pit of the stomach; the cloth or sponge on both plates being previously well moistened with the acid mixture for charging the battery. This moistening of the plates with the acid mixture is very important to be attended to, as an action on the skin is thereby produced which gives a ready passage to the galvanic influence. I would then bring the armed ends of the wires, (the other ends being plunged in the cells of the trough at such distance apart as to produce the desired intensity of action,) in contact with the plates, and maintain as strong an application, for eight or ten minutes, as the patient could bear without complaining. Sometimes the positive, and sometimes the negative wire will produce the most pungent sensation: I would occasionally reverse them, so that the strongest sensation should be felt at the pit of the stomach, or in whatever part the pain might be most severe. If the pain and spasm should extend over the whole region of the abdomen, I would occasionally let one plate remain on the pit of the stomach, and shift the other to various parts of the abdomen where the pain might be severest: or, perhaps, a large plate fitted to the whole region of the stomach and bowels, (lined with cloth or sponge and well moistened as before directed,) might answer the best purpose. In the meantime, the internal administration of *spts. ammoniæ* and *æth. sulph.* in doses of fifteen or twenty drops of the former, and a tea-spoonful of the latter every half hour, might be a useful auxiliary: this, however, to be left to the judgment of the attending physician.

I feel very desirous that a fair experiment should be made with the galvanic battery, in a decided and well-marked case of the cholera: and you will confer a singular favour on me, (and perhaps on some patient,) by having such an experiment instituted, and letting me hear the result as soon as convenient.

Frankfort, Kentucky, August 15th, 1832.

Case of Cholera Infantum cured by Lunar Caustic. By JOSEPH C. SKINNER, M. D. (Communicated in a letter to Dr. Darrach.)—My daughter Cornelia, aged seventeen months, was attacked about the middle of June, 1829, with the usual symptoms of cholera infantum, the most prominent of which were the following: occasional vomiting, particularly when any fluid was taken in the stomach; the matter ejected was sometimes tinged with bile, but more commonly it was merely the fluid taken in the stomach; the bowels were exceedingly irritable, the evacuations copious, frequent, and very offensive; sometimes of a clay colour, at other times resembling coagulated milk; fever of a remittent form; skin

hot and dry, &c. These symptoms commenced gradually and increased in severity daily until they became alarming. On examination of the mouth, I found the gums tumefied and four molares making their way through, which was believed to be the exciting cause of the train of symptoms which I have described.

In the treatment of the case my first object was to remove all sources of irritation; accordingly the gums were freely scarified, and the bowels well purged with calomel and calcined magnesia and injections of common salt and warm water. This practice was steadily adhered to for several days, but failing to produce the desired effect, and symptoms of prostration fast approaching, the pulse indicating a great degree of debility, and the fever assuming a more decided remittent type, indicating the influence of miasmata, I deemed it necessary to resort to tonics and stimulants; accordingly I gave the patient half a grain of sulphate of quinine, with three grains of prepared chalk every two hours, and the sixth of a grain of opium every twelve hours, occasionally using an injection of melted fresh butter when the bowels were painful, a practice which had been remarkably successful in my hands in similar cases. In a few days I had the pleasure to witness the happy results; the patient seemed nearly convalescent, but owing to the extreme hot weather and some little error in diet, the disease returned and very shortly assumed a chronic form. The same treatment was pursued with the addition of brandy and port wine, but with little or no effect. The disease gradually advanced, the patient became more and more emaciated, and all the symptoms more aggravated, until about the 10th of September, when her situation became exceedingly alarming. The bowels were exceedingly irritable, the skin hot and dry, the tongue thickly incrustated with a whitish fur, the thirst insatiable, eyes thrown back, and apparently insensible, a profound stupor supervened and the mouth kept steadily open. On examining the evacuations from the bowels I discovered small portions of what I believed to be the internal coat of the intestines. In this state of things my hopes all vanished, and was about to give up my little daughter in the hands of its Creator, but recollecting the utility of lunar caustic, (nitrate of silver,) in severe cases of aphthæ, I determined to give it a trial in this case; accordingly I dissolved one grain in a tea-spoonful of the mucilage of gum arabic, and gave her one every four hours; after she had taken three portions I perceived the most happy effects about to take place, which inspired me with confidence in the remedy and a consequent determination to persevere, gradually increasing the dose and giving it at shorter intervals. The symptoms now began to abate, sensibility began to be restored, and every circumstance of the case seemed to promise a speedy convalescence. On the third day from the commencement of the caustic I discontinued it, and from that time the patient rapidly recovered upon a plentiful diet of poultry and sweet potatoes, and now she is a healthy and thrifty child.

Hertford, N. C. June 20th, 1832.

Case of General Dropsy. By CHARLES C. HILDRETH, M. D. of Marietta, Ohio. —Betsy King, a strong, robust, hard labouring woman, about fifty years of age; began to complain of difficulty of breathing, and enlargement of her lower extremities; a few days after falling into a stream of water.

These symptoms had been gradually getting worse for about six weeks previous to my seeing her, occasionally yielding partially to evacuants, digitalis, &c. which had been prescribed for her by other physicians. When first called to see her, I found her sitting in an arm chair, which she had not been able to leave for some time previous, breathing laborious, slightly asthmatic, and crepitant; complains of great weight and oppression in the chest; dry and troublesome cough, and deficient expectoration. To these symptoms were added an almost total suppression of urine, and slight mental alienation.

Her lower extremities were distended almost to bursting; slight vesications

had already appeared, indicating an effort of nature to diminish the distention. The skin felt cold to the touch, hard, and resisting to pressure.

So great to me appeared the cellular infiltration, that to satisfy my curiosity and avoid exaggeration, I took the trouble to measure it; this I did by applying a string around the bellies of the gastrocnemii muscles; which again applying to a scale I found to measure very nearly twenty-six inches.

Her pulse was full, hard, and tense, evidently indicating venesection, to which operation she however refused to submit, urging her feelings of weakness and the severity of the preceding course of treatment.

Thinking perhaps her sanguiferous system might be sufficiently reduced by active hydragogue cathartics, &c. to render the absorbent system sufficiently active, I commenced the treatment by the following prescription:—*R. Supertart. potass. ℥ii.; Pulv. jalappæ, ℥i.; Nit. potass. ℥i.; Gambogiæ, gr. vi.* Of this compound, one tea-spoonful proved sufficient to procure five or six copious, fluid alvine dejections daily. To remove any visceral engorgement that might exist; and stimulate the kidneys to more active secretion, I gave her a pill morning and evening, of calomel and squills, *aa.* one grain. This prescription was continued until a slight pyalism was induced, which was perceptible about the fifth or sixth day. Seeing no diuretic effect for the first few days from the nitre and squills, I ordered her a decoction of the common garden parsley, and some other diuretics from the woods, in old cider, to be taken pretty freely; this almost immediately occasioned a profuse secretion of urine, the patient discharging several quarts daily.

To promote expectoration and relieve her asthmatic breathing, I gave her Coxe's hive syrup, combined with a saturated tincture of lobelia inflata.

From this mixture, together with the cathartic and diuretic, she soon experienced great relief in respiration. To diminish the enormous distention of her lower extremities the more rapidly, I made with a spring lancet several punctures through the integuments and cellular membrane extending them down from near the head of the tibia, on either side, towards its lower extremity.

These gave exit to large quantities of water; keeping up a constant dripping from the same, till the flannel swathe about her extremities, her shoes, and the carpet breadth, were quite wet with the effusion.

By repeating these punctures, and continuing the above prescriptions about a week; the dropsical affection was entirely removed. Leaving her extremities shrunk to their natural size, and the skin slightly corrugated from increased tone. Her hydrothorax seemed also entirely removed; her cough and oppression having left her; and the patient being able to lie down and sleep without any difficulty of respiration. A slight ascites which had been forming but a few days, but which had been rapidly increasing, was by the same means checked and dissipated, leaving her entirely free from all dropsical effusion.

A liberal exhibition of tonics completed the cure.

Marietta, August 28th, 1832.

On the German, or Camphor Treatment of Cholera Asphyxia. By WILLIAM CHANNING, M. D. of New York.—The following comprehensive directions, intended to meet, in some degree, the exigencies of those who desire information relative to the use of camphor in the treatment of cholera, are essentially a summary of the practice of several physicians of New York, and now sanctioned by their experience in more than six hundred cases, many of them of the most malignant character. If they shall prove instrumental in lessening the destruction attending the pestilence now ravaging our country, the writer's design will have been answered.

It is necessary to premise, that in specifying measures generally efficacious in cases as they have arisen, it is hardly possible, in a single sheet, even to touch upon the principles upon which the practice is founded; and still less to enumerate the various circumstances of age, sex, constitution, &c. of the patient,

and the diversified phenomena of the disease, that, as in other diseases, require correspondent modifications of the treatment—modifications which it is manifest, must be left to the professional *tact* of the intelligent physician.

Another remark too important to be overlooked is, that there have already been observed no less than six different forms of epidemic cholera, each having its characteristic features, and each its appropriate treatment. Several of these may prevail, according to laws not ascertained, during the same season, in different countries or districts, as noted in Europe in its late desolating progress.

It must therefore be explicitly understood that the practice here set forth is designed only for an epidemic exhibiting the same distinctive features as have marked the footsteps of cholera in this city; and that, in such an epidemic, cases may be expected in which the *literal adherence* to directions *necessarily general*, may prove pernicious and even fatal. Moreover, it must be constantly borne in mind, that, throughout the several stages of this disease, from the first premonitory symptoms to confirmed convalescence, it is essential to the success of the camphor treatment, that the *patient be free from the counter influence of other medicinal agents*,* and that, of all others, none is so utterly opposed to its efficacy, none so fatal to every hope of a favourable issue, as *opium in every form* in which it is administered.

To avoid repetition, it is thought expedient to present the treatment of the several stages of cholera in a reversed order, commencing with that in which its appalling symptoms are most strikingly developed.

The stage of asphyxia.—In this stage, if the collapse shall have long existed, or if the march of the disease shall have been unusually rapid, the evacuations so excessive that the patient appears nearly exsanguinated, the pulsations of the carotids and of the heart remarkably feeble and the respiration very laborious—but little hope can be indulged under any treatment. Such patients, however, have in some instances been resuscitated by the judicious exhibition of camphor—the doses being diminished to about one-fourth part, and repeated every three, four, or five minutes, and the other measures hereafter detailed faithfully enforced. But the majority of collapsed patients, when first seen by the physician, happily have not yet sunk to the above discouraging condition; and though the pulse at the wrists shall have ceased, the extremities and face shall be blue and shrivelled, and with the tongue and breath, evince no vital heat, if there be ordinary constitutional stamina, it is in such cases that the camphor treatment exhibits most convincingly its *specific* powers; for in such cases, if experience be the test, it is entitled to a confidence that can be claimed by no other yet promulgated.

1st. The patient should be immediately undressed and well covered in bed, and woollen stockings placed upon his hands and feet. 2d. Three drops of the spirit of camphor† in a table-spoonful of water, or (what is equivalent and of more convenient administration) a table-spoonful of camphor mixture‡ should be forthwith administered, and repeated every fifteen minutes. 3d. An injection warm as can be borne of the camphor mixture somewhat less than half a pint, every half hour, or oftener if not retained. 4th. The abdomen and chest should be covered with flannel wet with camphor spirit—the limbs above the stockings rubbed with it, and the bed-clothes about the patient's head so sprinkled with it that camphor may be inhaled with every breath. 5th. The extreme thirst should be allayed with a table-spoonful of cold water, or pure brandy and water *very weak*, as the patient may prefer, every five or ten minutes.

These measures should be unremitting until pulse and warmth be restored to

* This remark requires the qualification that there are cases of occasional occurrences, in which according to circumstances to be recognised only by the skilful physician, *cuprum, veratrum, rhus* and *strychnia*, are called for and exhibited with the greatest advantage.

† The spirit of camphor referred to is that of the L. and D. P. or camphor (2 oz.) two ounces, dissolved in alcohol a pint.

‡ The camphor mixture may be extemporaneously prepared by adding to a common black bottleful of warm water three tea-spoonfuls of the spirit, to be shaken for a few minutes, then strained through a coarse napkin to remove the undissolved camphor.

the extremities, when the injections, (and the frictions, if no cramps be present,) may be discontinued. The *full dose* of camphor must be maintained until free perspiration becomes general, and the evacuations comparatively infrequent; then they are to be promptly reduced to *one drop* of the spirit, or a *tea-spoonful* of the mixture. So soon as the evacuations are small and rare, and begin to evince a bilious tinge, (as is often the case at an early period,) the *intervals* should be extended to twenty, thirty, or sixty minutes according to the degree of heat and perspiration, and thus continued until the watery discharges shall have wholly ceased. After this occurrence, most patients require the repetition of the one drop every two or three hours; but in some, this small dose, once in four, six, and even twelve hours, proves abundant for the continuance of active perspiration, while the *hazard of over excitement and depressing narcosis* is thus with ease avoided.

The sweating process in this manner, fully though cautiously sustained, is to be pursued in collapsed cases at least thirty-six hours, every exposure which may arrest its salutary influence being carefully avoided. In the course of it, the insatiable thirst gradually ceases, and the patient, after a little light nourishment two or three times, generally will relish, and in moderation, will take with great advantage, every three or six hours, beef-steak, mutton-chop, or boiled chicken, with good stale wheat bread; and for drink, Brandy and water, and pure Port or Sherry wine. These articles should constitute the principal diet of the convalescent, whose *decidedly expressed wants*, as the utterings of nature not to be disregarded, should be indulged, yet with great temperance. Experience has amply shown, that by management so simple, convalescents, after severe attacks of cholera, may, with very few exceptions, be safely conducted through its consecutive dangers to confirmed health; always however, (peculiarly predisposed, as they must be in their debilitated state, to renewed attacks,) requiring the reiterated admonitions of their physician to unceasing vigilance.

The cramp or spasmodic stage.—This stage ordinarily precedes that of collapse, in many instances runs into it, and like it, is often accompanied by profuse evacuations, fits of vomiting, cold extremities, &c. If the sufferings be very severe, and collapse threatened, it calls for treatment as active as that just detailed, the frictions being vigorously applied to the seat of the cramps. If vomiting be a predominant symptom, the præcordia should be rubbed with the camphor spirit, and only *one drop* in a tea-spoonful of water administered every three or five minutes; if repeatedly rejected let a like quantity be diffused through three, six, or even ten times the water, and given by the tea-spoonful till a larger dose shall be retained. By this mode of exhibition, camphor never fails to overcome the most violent vomiting occurring under this epidemic, after which no difficulty exists in pursuing the course directed in the stage of asphyxia. In case the attack be of a milder nature, warm perspiration will speedily appear, and the symptoms vanish under treatment less active.

The premonitory stage.—It is generally indicated by one or more of the following symptoms—lassitude, ringing in the ears, chilliness, uneasiness or soreness in the region of the stomach, nausea, occasional vomitings, costiveness, diarrhœa, pain in the bowels, slight cramps, particularly in the fingers and toes, &c. Unless severe in the outset, or too long neglected, the patient will rarely find it necessary to leave his ordinary avocations, though in cool or damp weather he may require an extra garment. To obviate costiveness, a mild injection, daily if required, is the safest means to be used when the bowels are so easily irritated into violent diarrhœa, as during the prevalence of cholera. If *any laxative be taken*, castor oil, in the dose of a tea-spoonful, with three drops of camphor spirit, repeated in an hour or two if it fail to operate, is to be preferred. In reference to the other symptoms of this stage, the same dose of camphor, repeated if requisite in an hour, or if they be urgent in half an hour, or a quarter even, will almost invariably arrest any, and all of them. Should they however obstinately persist, the patient must submit to the inconvenience of a free perspiration in bed for a few hours. The importance of *promptly ap-*

plying the remedy for the symptoms of this stage, and thus nipping the disease in its bud, cannot be too strenuously urged upon every individual exposed to this epidemic.

The practice above designated, can hardly be more at variance with any of the prevailing views of medical men, than with those entertained, but a brief period since, by the writer himself. In this age of generalizing, he had been led to doubt the existence of a *specific* for any disease. Experience, the only unerring guide, has convinced him of an error that has but too many adherents, and to propagate its correction, is but justly due to the interests of sound philosophical medicine.

To have imagined that the introduction of camphor as a specific for a disease so formidable as cholera, would escape an opposition as violent, if not so formidable, had argued gross ignorance of the history of improvement in every department of human knowledge. He who is aware that in enlightened Europe the virtues of ipecacuanha and Peruvian bark remain untested, and the unequalled blessings of the potato unappreciated, until the stamp of *royal* patronage opened the eyes of the blind, can scarcely feel surprise at what he witnesses in the present instance.

But facts are daily accumulating, which, as they become known, must carry conviction to every understanding accessible to truth. To such—to *such alone*, the writer would appeal for an impartial trial of the practice he would promulgate. And he makes this appeal with the most unwavering confidence, (a confidence resting upon an extensive knowledge of facts in private and in public practice,) that such a trial cannot fail to demonstrate the preëminent simplicity, safety, and certainty of the camphor treatment of cholera asphyxia, as well as the acumen of German research which first devised it.

New York, August 30th, 1832.

As an appendix to this publication, the writer deems it an act of justice to state, that while most of the indications above specified have been the result of experience here, yet the use of camphor, as a remedy for cholera, with the general principles of its exhibition, originated in Germany, and for its promulgation the American public are principally indebted to his friend, Dr. H. B. Gram, of this city.

Report on the Epidemic Cholera lately prevalent in the Maryland Penitentiary. By H. WILLIS BAXLEY, M. D. Physician to the Institution. (To the President and Directors of the Maryland Penitentiary.) In submitting the hospital reports for the past and present months, it is proper to make some reference to the cause of the unusual mortality with which the prisoners were visited during the former period. By referring to the hospital record it will be perceived that two cases of malignant cholera were reported in the month of June, previous to the official announcement of the disease in New York, and four in July. It was not until the 13th of August however, that the disease made its onset in the more dreaded character of an epidemic. On that day two persons were attacked, and nearly every succeeding day added new subjects to the list until the 14th, of September, since which time no case has occurred. No convict had been committed to the penitentiary since the 3d of July; on that day a woman was received from Somerset county, where the disease was not then in existence. The disease first appeared among the men.

At the commencement of the epidemic several persons sunk suddenly into fatal collapse who acknowledged the preëxistence and neglect of diarrhœa; and yet, with these examples of speedy mortality among them, there were found others who carefully concealed the premonitory symptoms of the disease, until the development of the stage of asphyxia gave evidence of its existence. This fact led to the early adoption of a strict system of medical police, and by constant investigation into the state of health of the prisoners, many were found labouring under incipient symptoms, whom carelessness, prejudice or self-con-

fidence, would have led to a reckless sacrifice of life. It was observed that those whose digestive organs had been impaired to the greatest extent by previous irregularities, excesses, and habits of intemperance, were most obnoxious to the disease. Nor is it surprising that such a large proportion as one-half of the inmates of this establishment should have suffered from the influence of the morbid cause, when we consider that within the walls of no other institution, except those of an Alms-house, is there an assemblage of persons so remarkable for previous habits of depravity and licentiousness. In most cases habitual intemperance was found to have destroyed the capacity of resistance afforded by a healthful organic structure, and the first opposition having been overcome, little was left for the epidemic to accomplish in the production of more active disease.

To obviate as much as possible the evil effects of known existing causes, the efficient police of the institution was increased, and redoubled watchfulness was exercised to prevent the use of other articles of diet than those allowed, which were selected with entire reference to their wholesome properties. The number of meals was also increased, which rendered it unnecessary for the prisoners to take any portion of their allowance from table, which was strictly forbidden, and its enforcement had a salutary effect, not only in preventing dangerous excesses in some, and equally dangerous inanition in others of the healthy, consequent upon the otherwise uncontrollable practice of provision trading, but in securing the uninterrupted improvement of convalescents, many of whom had relapsed, and several died, from the effects of surfeit. The provisions consisted of tea sweetened with sugar, wheat bread and herrings, for breakfast. Bread and tea for supper. For dinner, beef and beef soup, or pork, bread, rice and potatoes.

In addition to the dietetic measures adopted for the preservation of health, others were resorted to. Personal cleanliness was enforced by the use of baths—the prisoners were clad in comfortable woollen clothing—extra bedding was allowed—the usual labour was not exacted—and every means of cleanliness and purification, both in the workshops and cells, were had recourse to that prudence could suggest. The cholera was in nearly every instance preceded by symptoms of greater or less duration, and more or less violence, indicative of disorder in the healthful functions of the stomach and bowels. Abdominal tenderness, soreness, pain, or simply a sense of uneasiness or distention; precordial anxiety and oppression; a sense of burning, and frequently a rumbling of the bowels, as patients have often expressed it; perhaps lassitude and dizziness; any one or more of these with diarrhoea, with or without nausea and vomiting, existing sometimes for days, sometimes for a few hours only, constituted the most usual precursors of an attack. It is this stage of the disease that has received the name "cholérine," a term implying a less aggravated degree of pathological condition, constantly tending, and almost invariably terminating, in a most malignant and unmanageable form of disease, when neglected. The production of more or less violent symptoms, is not incompatible with the operation of the same powerful morbid agent, exercising its influence upon differently susceptible constitutions, and under a variety of modifying circumstances and exciting causes. Unless this be admitted we cannot account for the universal prevalence of gastro-intestinal disorders of a milder type constantly attendant upon the cholera in this country, and emphatically spoken of in the valuable documents of Drs. Rhinelanders and De Kay of New York, and in the able report of Professor Jackson and Drs. Meigs and Harlan of Philadelphia.

No difficulty was found in controlling the disease before it had passed the limit above described. The texture invaded was evidently the mucous membrane of the stomach and bowels; and the pathological condition consequent upon the first impression of the cause was one of irritation. To meet the indications pointed out by this state of the organs, the following measures were adapted.—A strict avoidance of all aggravating causes of irritation; the use of diluent drinks, barley, rice, and elm water—also diluted lime water; diet of

boiled milk, mutton broth, rice, tea, and stale wheat bread; the promotion of external warmth; the use of revulsive agents; principally friction; and entire rest by confinement to bed. These measures generally sufficed to remove the less violent symptoms. For the aggravated conditions, more energetic treatment was required, and on many occasions, venesection or cupping, was found absolutely essential to arrest the more active developments of incipient inflammation. One or both of these, with the salt and water emetic, especially to remove foreign substances, followed by calomel and pil. hydrarg. with or without rhubarb, opium, acet. morphia, or pulv. Doveri, ol. ricini with black drop, laudanum, or denarcotized tinct. of opium—the effervescing draught, sinapisms, and aromatic anodyne poultices, prescribed to suit the peculiarities of each case, were found sufficient in all cases to fulfil the indications of cure; not one, of more than one hundred patients who were subjected to this treatment, having sunk into collapse.

On the neglect of the before described *premonitions* of cholera, other symptoms of a far more formidable character were developed: in some few instances indeed, the first open manifestations of disease were a copious evacuation from the bowels, sudden prostration, and instantaneous collapse; the concentration of the cause, or the constitutional susceptibility of the patients being such, that they seemed struck dead at once. This sudden invasion of the disease occurred in but nine instances; a small proportion of the great number of cases which sustain the law of its gradual and less alarming attack, and in most of these, there had been long standing chronic diseases of the digestive canal consequent upon previous habitual abuses.

The symptoms of the more advanced stage of the disease were nausea and vomiting of a serous or rice water fluid, sometimes bearing a close resemblance to whey, soap-suds, or gruel, and generally containing albuminous looking flocculi. Frequent and copious dejections of a similar fluid, in some instances more than two gallons having been discharged in a few hours. Spasms of the stomach and bowels; great tenderness and heat of the epigastrium; cramps of the extremities usually commencing at the feet and seizing the upper parts of the limbs in succession; enfeebled circulation; pulse small, weak, and sometimes frequent, at others as slow as 40 to the minute; secretions arrested, no urine, bile, nor tears; features contracted, eyes sunk and surrounded with a dark arcola; skin of fingers, toes, hands and feet shrivelled, and of a livid hue; tongue and general surface cold, and often exhibiting a tendency to discoloration indicative of cutaneous exudation and retreat of the more fluid parts of the blood, and stagnation of the remaining portion. This latter appearance in general marked the stage of confirmed collapse. The brain was unaffected, or only remarkable for diminished energy; a huskiness or peculiar hoarse whispering tone of voice, sense of suffocation, intolerant thirst, incessant tossing, and complaint of burning heat, even when the body was icy cold, also characterized this stage. The aggression of most of the above symptoms constituted what may be termed *incipient collapse*; an aggravation of these, a cessation of some and a development of others, consequent upon a greater enervation of the ganglionic system; a more enfeebled circulation, and a deeper involvement of various organs, constituted the stage of *extreme collapse*, or *confirmed asphyxia*, which has been justly considered the dying stage.

The treatment adopted to arrest the passage of the disease from the incipient to the fatal collapse, was founded upon what was believed to be the true pathological condition, about which there can be no doubt, whatever mystery may overhang the character and operation of the remote cause. This condition, as before intimated, is primarily one of irritation of the gastro-intestinal mucous membrane, resulting in inflammation and congestion, with consequent debilitating evacuations, deranged nervous sensibility, enfeebled circulation, suspended secretions, and universal disturbance of the various functions connected with the sympathetic system of nerves. This respondent disorder of the various organs might be reasonably expected, when we consider the extent of the

morbific impression, upon a surface of relation greater than the whole external surface of the body—nor was the blanched appearance of this membrane, as discovered sometimes on autopsic examination, any proof of the previous absence of inflammation; this appearance was found only when there had been excessive serous discharges, by which the vessels were relieved. The indications of treatment were clear, and of the agents used for their fulfilment, blood-letting and cupping were of the first importance. These exercised a peculiar power in subduing irritation, removing congestion, arresting exhausting discharges, and unlocking the oppressed circulation; in many instances a contracted and feeble pulse becoming full, open, and more resistant, and the vomiting

ay on." It may be proper to state that of sixty of fully formed cholera with whom either venesection or cupping, sometimes both, were used, seven died. Of eighteen who were neither bled nor cupped, nine died. Next to sanguineous depletion should be mentioned the saline emetic, sometimes combined with mustard, especially in cases of great insensibility and prostration; in some such cases the use of this remedy was attended with the effect of rousing the sluggish circulation, congestion was removed, reaction established, and blood-letting resorted to with happy results. On most occasions it was found a valuable adjuvant, and appeared to exert an influence independent of mechanical operation. Cutaneous action was diligently promoted by the application of dry heat, the vapour bath, and various external irritants—nor can I omit to refer to the benefit often derived from large poultices of hops or chamomile, or meal wet with strong hop water, frequently applied warm to the abdomen.

In aid of other means, calomel to reëstablish suspended secretions combined with camphor, small proportions of opium or acet. morphia, at first in a dose of fifteen or twenty grains, subsequently in smaller quantities frequently repeated, was made use of. Sulph. of quinine and acet. plumb. ather, aromatic spts. of ammon., spts. Mendereri, brandy; also enemata of decoction of oak bark, solution of alum, kino, and opiates, were resorted to with advantage as the indications of treatment required. Other remedies recommended on respectable authority were used in a few instances, particularly stim. mercurial frictions and venous injections; these were not found to sustain the high character attached to them by a few persons abroad. Our principal reliance was placed upon the treatment more particularly detailed, the success of which and a sound pathology, forbidding an indulgence in random practice—and much was dependent upon the promptness, energy, and unremitting attention, with which the prescriptions were executed.

In concluding this exposition, which it has been due to the occasion to submit, I must bear testimony to the unceasing efforts of your superintendent and the other officers of the institution, (not one of whom contracted the disease,) in endeavouring to mitigate the devastations of this awful pestilence. Nor can I allow the opportunity to pass, without expressing my personal acknowledgments to my intelligent young friend, Mr. J. B. Owens, for his zealous aid in promoting the same humane object.

Baltimore, October 18th, 1832.

*Letter on the Epidemic Cholera of Albany, addressed to Thomas Spencer, M. D. President of the Medical Society of the State of New York. By JAMES M'NAUGHTON, M. D. of Albany, N. Y.—*DEAR SIR,—Your letter of the 6th has been duly received, but the press of professional engagements has been so great, as to have put it ought of my power to answer it sooner. Even now, I am indebted to a fit of sickness, which has, for the last two days, confined me to the house, for leisure to reply to your inquiries. My reply must be brief, as my strength will not permit me to enter into much detail. Besides, all that I have to say, can be compressed into a very small compass.

1st. Cholera has, in every instance that has come to my knowledge, in this city, been preceded by more or less indisposition. The *first symptom* that attracts my notice is, *a white slimy tongue*; and I consider the danger of an immediate attack more or less urgent according to its degree. When this is *well-marked*, there is *usually* a diminution of appetite, and generally occasional qualmishness of stomach. The eye has not its wonted brightness, nor the countenance its usual animation. The hand in this stage will be found warm, and the pulse quickened. This state may continue for some days, and eventually, in a good constitution, go off without the occurrence of any more serious indisposition. But in other instances, the above-mentioned symptoms are followed by head-ache, sickness at stomach, and diarrhœa. The head-ache and sickness may be slight, but in a vast majority of cases a severe attack of cholera is preceded by well-marked diarrhœa. I have not known a single instance in which it was altogether wanting;—but it is proper to state, that in some fatal cases it was slight, and of short duration.

2d. I know of no circumstance which distinguishes the diarrhœa which precedes the cholera from ordinary diarrhœa, unless it be the *total absence* of biliary secretion in the discharges. Bile, I believe, is *never present* in the discharges preceding an attack of malignant cholera. If bile be found in the dejections, the cholera will be of the common kind, should it follow a diarrhœa.

3d. I am of opinion “that the epidemic ought to be regarded as an aggravated form of the common cholera.” We find it prevailing in different degrees in the same family, or neighbourhood. One may have it in its most severe form, another may have a slight common cholera; a third may have only a diarrhœa, while a fourth has only a white tongue and a slight loss of appetite. I have known this to have happened in more than one instance. The same general and local causes are modified by constitution, and divers other circumstances, so as to produce different effects in different individuals. The causes, whether atmospheric or telluric, or both, which give the cholera this season an epidemic character, are sufficient to account for its greater fatality, as well as for its more general prevalence. I do not think that there is enough in the fatality or character of the disease, to justify us in regarding it as *essentially different* from common cholera morbus, or as originating from a specific cause. The epidemic was much more destructive in Asia than it has been in Europe: and in Canada it has been more virulent than in the United States. But still we are not to suppose because it varies in its character and in its severity, that it is not one and the same disease, influenced and modified by circumstances. Where it is mild, we may infer that the predisposing and exciting causes do not exist in an intense degree—where virulent, we infer the contrary. It is just so of other epidemics. One season scarlet fever is mild, and few fall victims to it; another, its course is marked by desolating havoc in families and neighbourhoods. The disease, notwithstanding, is one and the same, differing only in degree. So with measles, and so with many other diseases I might mention.

4th. It originated in this city among the resident inhabitants, and we have no reason to attribute its commencement to intercourse with Canada. During the latter part of June, bowel complaints and common cholera became frequent. On the 3d of July, two fatal cases occurred at distant points in the city, but both near the river.

In a vast majority of cases, the disease has attacked persons who had no intercourse with the sick; but truth demands I should acknowledge that when a case has occurred in a family or house, others in the same house or vicinity have been attacked too often to be fortuitous occurrences. Whether a person labouring under the disease is capable of communicating it to another living in a healthy place, and not particularly predisposed, I am unable to determine; but I think there can be no doubt but that persons living in the same house with the sick, or attending upon them, are more liable to be attacked than others. Such persons are exposed to the same causes which produced the first attack. In addition to which, they are disturbed in their minds and in their rest—

exposed to fatigue and to the exhalations arising from the body of the patient—all circumstances favouring an attack.

It is safe to say, that the disease is not dependent on contagion for its propagation. It spreads as an epidemic, but under particular circumstances may be communicated by contagion. This is true of other epidemic diseases. The measles, whooping-cough, and scarlatina, attack persons who have had no connexion with the sick; but are more apt to attack those who have had intimate intercourse with them.

5th. When cholera does not prove fatal, it degenerates into fever, varying in type according to constitution and circumstances, as well as to the previous medical treatment.

6th. It is not confined to any class of citizens. All are equally susceptible; but its severity and fatality have been much greater among the labouring classes and the poor, than among those in easy circumstances. Very few deaths have occurred in persons in good circumstances, whose habits were correct, and who had previously been healthy.

It has not been confined to any part of the city. It has been as severe on the top of the hill, which is high, dry and sandy, as near the river, where it is low and damp. It seems to be more affected by the circumstances of particular houses, in respect to ventilation, cleanliness, number of inhabitants, &c. than by general circumstances. It is most destructive in small, damp, crowded houses, where there is too often no regard paid to cleanliness, or ventilation, and where the habits of the inmates are frequently dissolute. It has not "picked out drunkards" as much as I anticipated, though where it has fallen upon such, it has fallen, like other diseases, with greater severity.

7th. The two first who died were the only ones that, to my knowledge, have been examined after death in this place. These were dissected by Dr. March. The bodies were blue. The veins of the abdominal viscera congested; omentum and epiploon reddish; *gall-bladder distended with bile; no bile in duodenum; veins congested; urinary bladder contracted; only as large in one case as a hen's egg; muco-purulent on inside; the same with ureter.* These latter appearances were probably unconnected with the disease. *Brain,* serous effusion of pia mater—some in ventricles, and in sheath of spinal marrow. From the nature of the disease, little information is to be looked for from dissections. Nothing but functional disturbance can be expected in so short a time, and congestion of the venous system must necessarily occur, from the phenomena of the disease. The appearances observed in protracted cases are still less to be depended upon in explaining the pathology of the disease. Since the derangements produced are purely functional, probably the best, if not the only true way, of ascertaining the nature of the disease, will be, to study the condition of the several functions, and observe the manner and order in which they become severally disturbed.

The very first morbid change I have been able to detect has been in the tongue. This varies from a shade of white so slight as scarcely to be perceptible, to that in which it is covered with a white slimy coat as thick as a sheet of paper. This coat may exist to a considerable degree without *any loss of appetite*, or complaint on the part of the patient; but when it is well-marked, a slight check of perspiration, or irregularity in diet, will bring on diarrhoea; and should the exciting causes continue to operate until cholera come on, it will be of the worst kind, attended with spasms, and rice water evacuations from the bowels and stomach. Diarrhoea and other premonitory symptoms may not precede cholera more than a few hours, or even a shorter time; but I believe the *white tongue* precedes it invariably for at least twenty-four hours, and often for a week. This index, therefore, affords patients an opportunity of attending to themselves ere it be too late; *for malignant cholera is a disease to be prevented, not cured.*

The functions of the whole mucous membrane of the stomach and intestinal canal seem to be deranged as much as that of the tongue. The bile, though

secreted, does not find its way into the *duodenum*. This may be owing to spasm of the biliary duct, or of the muscular fibres of the *duodenum*, where the duct enters it, or simply to the redundant mucus plugging up its orifice. The digestion must necessarily become disturbed, and a vitiated chyle is in consequence carried into the circulation, to contaminate the mass of fluids, and to disturb all the other functions. It is probable that the same influences, whether atmospheric or telluric, which disturb the functions of the mucous membrane of the digestive apparatus, may at the same time impair the functions of the mucous membrane of the lungs, rendering it less capable of acting on the air respired, and of exerting the necessary influence on the venous blood. Or it may so happen that the application of cold and damp may check the cutaneous transpiration, and affect the mucous membrane of the lungs simultaneously, and constitute the first link in the chain of disordered action, whilst the mucous membrane of the intestinal canal and the vascular system are secondarily affected. If the disease were regularly preceded by a chill and catarrhal symptoms, I would consider the former the ordinary mode of invasion; but inasmuch as these are not well-marked in general, and the disease is insidious, first manifesting itself in the digestive apparatus, it will be best for practical purposes to consider it as originating there, and thence extending its influence to other functions.

8th. *Treatment in different stages.* In the first stage the tongue is white, the pulse accelerated, the digestion impaired, and there is lassitude and warm, dry hands. In this stage repose is required. If the patient can be persuaded that he is sick enough to keep his bed, use diluent drinks, abstain from solid food, the efforts of nature would generally throw it off—provided the stomach and bowels be not oppressed in consequence of irregularity of diet. In the latter case a gentle emetic of ipecac. followed by a dose of castor oil, or magnesia and rhubarb, or calomel and jalap, according to circumstances, I have found very useful. In the commencement of the epidemic I was afraid of using emetics for fear of bringing on cholera, as we have been taught to fear by European physicians. In the first stage I now use ipecac. and sulphate of zinc, separately or combined, without hesitation, and generally with the best effects. I generally give them in combination, in the proportion of twenty-five grains or half a drachm of ipecac. to from three to five grains of sulphate of zinc, in a wine-glassful of warm water. It operates speedily, and rarely affects the bowels. A full dose is better than a small one. The emetic determines powerfully to the surface, thereby relieving the internal organs and producing more equable circulation throughout the system. It also rouses the action of the stomach and liver, and adds to the efficacy of the calomel and opium with which I generally follow it, in emulging the biliary ducts. The tartrate of antimony I have not used alone, because it is not so manageable. When it operates freely it is apt to produce sinkings, and is, besides, very apt to run off by the bowels, which in this disease is extremely hazardous.

When there is much distress about the chest, with head-ache, a warm hand, and a full pulse, I have found bleeding to a moderate extent exceedingly beneficial. In such cases I am not deterred from using the lancet by the presence of vomiting, if moderate, or even when purging is also present. In several such cases I have found it very useful in relieving both the vomiting and purging. I have not given an emetic in any instance where the latter symptoms were both present, in a severe degree, attended with the characteristic rice water discharges. In such circumstances I think it hazardous to have recourse to emetics.

When head-ache, cramps in the limbs, full pulse, white tongue, and sickness at the stomach are present, I generally bleed, and often give an emetic after bleeding; and follow the latter by ten grains of calomel as soon as the stomach is sufficiently settled to retain it. If diarrhoea be present, I combine half a grain, or a grain of opium with the calomel. This generally restrains the diarrhoea, as well as the disposition to vomit. After an interval of four or five

hours, I direct two drachms of the tart. potassæ, dissolved in a gill of water, or gruel, to be given every two hours, until the calomel be carried off. The calomel usually brings away bilious discharges, and the soluble tartar has an admirable effect in cleansing the tongue and in improving the intestinal secretions. I am indebted to my distinguished friend, Dr. Caldwell, of Montreal, for suggesting to me the use of this invaluable remedy.

In the generality of cases of the above description, when there is merely white tongue and sickness at stomach, with more or less purging, a pill or two of calomel, with half a grain of opium in each, followed by the soluble tartar, will relieve all the symptoms, and speedily restore healthy secretions. In five cases out of six, in the incipient stages, I find no other means necessary, except what relate to diet and regimen.

When called to severer cases—when the hands are cold and moist, the tongue coated and white, cramps in the limbs, and frequent and copious discharges from the stomach and bowels of a fluid resembling rice water, I never bleed, having thought it hurtful in that stage. The great object then is, to check the inordinate discharges. I have found a tea-spoonful of equal parts of sulphuric ether, and laudanum, in half a wine-glass of water, more useful in checking the vomiting than any other remedy. The first dose is usually rejected very soon. In that case I direct its repetition. It seldom happens that more is required. To moderate the evacuations from the bowels, enemata of a tea-spoonful of laudanum in a wine-glassful of starch water, or milk, or gruel, repeated two or three times, at intervals of half an hour if rejected, are extremely beneficial. When the vomiting and purging are checked by these means, the patient often complains of great distress about the region of the stomach. In that case, a pill of one grain of opium and ten of calomel, will be very useful. I have also found the application of a large emollient poultice, as warm as it could be borne, over the stomach and bowels, to give great and speedy relief. The calomel in such cases should, in the course of a few hours, be worked off by the soluble tartar, as before directed. Blisters to the epigastrium are very useful in lessening the irritability of the stomach, which is apt to continue troublesome. They are also useful in lessening the sense of sinking, which is often oppressive.

In the last and worst condition in which we are likely to be called, when the body is blue, the eyes sunken, and the countenance ghastly, the hands cold, and the fingers as if soaked in water, no pulse at the wrist, and a cold, clammy sweat bedewing the surface—much may be tried, but little good can be done. I have as yet seen no recovery from such a state; but there have been several from states nearly approximating to it. It is, however, our duty to persevere while there is life, as there is, at least in this disease, some faint hope of success.

In the stage of extreme collapse there is no vomiting or purging, or much apparent suffering. The patient is restless, and constantly wants cold water, or ice, and should you gratify him in his request, the more you give the more he craves. In this stage the voice is nearly gone, the urinary secretion is suspended, and indeed all other secretions. The sweat appears to be a passive exudation of the serum of the blood, through the pores of the skin. The only functions are a feeble respiration, and a circulation only through the larger vessels, and through the head. Hence it is that the intellect often remains clear, though feeble, to the last.

In the stage of collapse, various stimulating applications are made to the surface; such as frictions with dry flannel, with heated Indian meal, or mustard flour; liniments containing ammonia, camphor, cantharides, nitric acid, &c., bottles of hot water to the feet, hands, pit of the stomach, back, &c. Sinapisms to the feet, bowels, wrists. Internally, some give hot brandy in repeated doses, with or without opium—others give only a small quantity once, and subsequently trust to less doubtful means. I myself use, internally, the aromatic mixture recommended by the Edinburgh Board of Health, in the quantity

of two tea-spoonfuls every half hour for a couple of hours, and afterwards use aqua ammoniac, or carb. ammonia in form of pills, in doses proportioned to the urgency of the case. Only use opiates to allay irritation, or relieve pain.

In this stage I have found enemata of rice water or arrow root, containing a wine-glassful of hot port or Madeira wine, every half hour or every hour, more useful in sustaining the strength, and in promoting reaction, than all other means. In the few bad cases in which I have had the pleasure of seeing a recovery, I have attributed it chiefly to their influence. It is a mode of *transfusion* more natural, and, let me add, more safe than that by the veins. In this stage I have seen the nitrous oxide used, but with no sensible effect. It produced no excitement or exhilaration. The lungs seemed to be insensible and dead.

9th. I have tried transfusion into the veins in one instance in my private practice. We injected a quart of a solution of common salt and sub-carb. of soda, in the proportion of a drachm of each. It gave temporary relief. It has been tried in three other instances in this city—twice in the Central Hospital, and once in private practice. In all these instances with only temporary relief. In the hospital it certainly protracted life for a day. But still I cannot recommend it as a safe or useful remedy. If used much, it would, I am sure, do more harm than good. It is true, some have recovered upon whom it was performed; it is equally true that some as bad cases have recovered on whom it was not performed. It is an operation which requires some skill in its performance; and it is also necessary to have an air-tight apparatus for the purpose. I think a long glass tube with a stop-cock, such as anatomists use for injecting lymphatics, better than the stomach-pump. By means of this, the foreign fluid can be gradually introduced, and the air be with certainty excluded.

I have not bled but once in the blue stage, and then it was under the impression that the powers of life were oppressed in consequence of the engorgement of the large vessels near the heart. It lessened the blueness, and for a short time relieved the respiration; but when collapse comes on, as it generally does after copious evacuations from the stomach and bowels, I hold bleeding to be inadmissible. The serous part of the blood is already in great part removed, and I cannot conceive that the patient is to be benefited by removing the *crassamentum* also.

I do not know that I can with any benefit extend my remarks further respecting the treatment of cholera. I have given you my general views, and the outline of the plan of treatment I usually pursue. It is unnecessary for me to say, that in this, as in every other disease, the plan of treatment must be adapted to the circumstances of particular cases. Nothing can be more mischievous than to prescribe empirically the same remedies in such a disease as the cholera, without proper attention to the stage, the complications, and the thousand other circumstances which modify, not only the disease, but the effects of remedies. The character of the epidemic also varies in different places, being much more virulent in some than in others; so that the course of treatment which succeeds in one place, may fail in another.

As to preventives, I would recommend the wearing of flannel next the body, to promote and preserve the functions of the skin; to avoid night air and exposure to rain and damp as much as possible, and, particularly, to guard against wet feet. I would not advise any great or sudden change of diet. Any thing that disturbs a healthy system is to be avoided as inexpedient, if not dangerous. The cold bath, or shower bath, and moderate exercise in the open air, are advantageous in strengthening the constitution, and in lessening the liability to the epidemic influence. The tepid bath in persons of debilitated habits would be better than the cold. People that are well, ought to take no medicines as preventives. Good health is a better preventive than all the articles in the *Materia Medica*. When the tongue becomes white, and the digestion disturbed, patients should take no medicine, nor make any great change in diet or regimen, without the advice of some skilful physician.

For the last six weeks my brother and myself have prescribed for from thirty

to fifty patients daily, five-sixths of whom were affected with some modification of the prevailing epidemic. Out of this number, eleven have died of cholera. Three of them were in a state of collapse before we were called; three were cases of relapse from exposure and error in diet; and one occurred in a person of debilitated constitution. In the remaining cases, though called in before the stage of collapse took place, our efforts proved unavailing in preventing a fatal termination. I mention these facts, not for the purpose of showing that our success has been at all extraordinary, but for the purpose of showing in how large a proportion of cases the disease is manageable, if taken in time.

If the public at large were duly impressed with the importance of attending to early symptoms, this fell scourge might be stripped of its terrors. I believe that the *white tongue*, to which I have endeavoured to draw your attention, gives the earliest intimation of a tendency to this formidable disease; and as it exists for a considerable length of time before an attack, the patient has sufficient warning of its approach.

The epidemic is here, I trust, somewhat on the decline. Up to this time, there have been nearly 1000 cases reported, and upwards of 350 deaths: but this constitutes but a small part of the whole number who have suffered from *cholera*, or the disease in its milder form.

I hope these remarks may prove satisfactory to you on the several heads on which you have requested my opinion.

Albany, August 23d, 1832.

Post Mortem Appearances in Cholera.—The fourth No. of our cotemporary, the *Medical Magazine*, contains some interesting observations on the cholera of Vienna, by Dr. CHARLES T. JACKSON, of Massachusetts; from which we extract the following account of the post mortem appearances exhibited in that disease. The dissections, Dr. Jackson remarks, “were made with due care and with great minuteness. There is a professorship of pathological anatomy at Vienna ably filled by Dr. Wagner. His sole duty consists in examining the dead and reporting exactly the state of the bodies submitted to his inspection. He does not attend the sick, and consequently could not be influenced by any bias in his pathology. I made a great number of dissections with this professor, and shall always remember the skill, talent, and minute accuracy for which this accomplished anatomist is remarkable; as well as the gentlemanly urbanity of the professor’s manners, and the kindness with which he received foreign physicians. The Germans are remarkable for the methodical arrangement of their studies. I observed this peculiarity in the manner in which they make their dissections. They examine the body before them as naturalists would a new species, and note every peculiarity observable. They begin always with the surface of the body; examine every little eruption that may exist on the skin, note the precise thickness of the adipose tissue, the state of the muscles, &c. The digestive organs come next; and they are as closely examined from the mouth to the anus. Then come the organs of circulation and those of respiration, and lastly, the brain and nervous system, which they examine with special care, always opening the spinal canals and disclosing the whole extent of the medulla. The mazes of the solar plexus are likewise threaded, and the exact state of the ganglions described. This precision gives often a tedious length to the reports, but is exceedingly precious to the student of morbid anatomy. I shall endeavour to lay before you, as briefly as possible, the general results of our dissections of the choleric subjects. The surface of the body is always remarkable, as we can distinguish a person dead of this disease at a glance, from the state of the skin and muscles.

“When we examine a corpse dead of cholera, we remark a livid purple or blue colour of the skin over the whole surface of the body, but more strongly marked at the extremities; the skin of the fingers on the palmar face is wrinkled, and the tips of the fingers and toes have deep furrows within, produced by this means. The eyes are deeply sunken, and have a dark bluish black ring around the orbits. The conjunctiva is congested with blood, and

has a glassy lustre—the flexor muscles are rigidly contracted, the tendons standing out prominent on the extremities; the hands are firmly clenched, requiring an effort to open them. Tongue covered with a brown slimy coat; mucous membrane of the mouth covered with an adhesive mucus—uvula, tonsils and pharynx covered with granulations, as is likewise the base of the tongue. These granulations vary in size from that of a pepper-corn to that of a pea, and are probably the mucous follicles altered by inflammation. They contain a yellow pus of more than ordinary consistence. Œsophagus corrugated. Mucous membrane of the stomach, often thickened, and is of a delicate pink colour, or is brownish-yellow, with spots of redness, as if from recent inflammation. These red spots have often little rounded vesicles of the shape and size of half a pea, projecting from the centre, these contain a liquid pus. We noticed the presence of vesicles in three instances in the stomach, where we first discovered them. Afterwards we found them very common in the whole tract of the small intestines, but did not find them so frequently in the stomach. These vesicles are probably mucous follicles altered by inflammatory action. Stomach and intestines are filled with a turbid liquid like rice water, with little flocculi of a white membranous substance floating in it. The fluid in the intestines is coloured more or less by faecal matter and bile.

“The glands of Peyer are enlarged in cases where the disease has been protracted into the typhoid state. The glands of Brunner are often in these cases rendered visible, as large as pepper-corns and have black points at their centres. Valvule conniventes of the duodenum flaccid, thickened and swollen—covered with the little vesicles before mentioned—more rarely they are ulcerated. Peritoneum dry, adhesive to the touch, and has a shining opaline lustre. The bile ducts are often thickened, but are generally open. Liver dry; gall-bladder filled with a brownish liquid bile. Spleen small, flaccid. Heart large, flaccid, soft, easily torn by the fingers—contains blood in all its cavities. The blood is imperfectly coagulated, resembling thick molasses. It adheres to the surface of the heart and gives it a dark colour. The blood is black, or venous blood in both ventricles and auricles. The *pulmonary veins contain clots of yellow coagulated lymph*, tremulous like jelly. Mr. Wagner considers this a peculiar phenomenon. The state of the blood is like that I have observed in persons dead of diabetes mellitus. Is it not the effect of a drain of serum from the blood during the vomiting in cholera, and by urine in diabetes?”

“In the organs of respiration we find the trachea containing ropy mucus of a brown colour. Vocal cords of the larynx flaccid, sometimes thickened. Mucous membrane of larynx sometimes red and congested. Lungs somewhat contracted in volume, are tough and leathery to the feel, but *crepitate well* and *never contain tubercles*. Kidneys have the veins full of uncoagulated blood. Bladder firmly contracted in a small mass beneath the pubes. It is generally empty, or contains a drachm of opaque liquid. Brain has the sinuses engorged with uncoagulated black blood. The cerebral mass firm, tough and dry. In cases where the disease was of a long duration before death, we found the brain congested. This was peculiar to the typhoid state. Medulla oblongata firmer than ordinary, and contracted in volume. Medulla spinalis congested with blood from gravitation after death. Semilunar ganglion was found sometimes enlarged, of a deep red colour, and sometimes softer than natural; the state of this ganglion, however, varied so much that I can give no precise account of its morbid anatomy. It is obvious the changes of colour in this ganglion might have been the effects of the change in the colour of the blood. But little is known of the morbid anatomy of the ganglionic nerves, and we have no data on which to found our comparisons—hence it is difficult to say what part their lesion might have performed in the cholera.

“We examined twenty or thirty corpses of persons dead of cholera during my stay in Vienna, and the above morbid appearances are generalized from the whole number. I have carefully compared the facts with those collected by my friends at Vienna, and find that we are generally of accord.”

Cholera Statistics of Philadelphia.—The following tables exhibit a very interesting view of the progress of the disease, and the localities in which the cases occurred. We are indebted for it to Mr. Samuel Hazard, in whose valuable publication, the Pennsylvania Register, it first appeared.

SUMMARY REPORT.

Date.	Private practice.		Hospitals.		Almshouse.		Arch street prison.		Total.	
	New cases.	Deaths.	New cases.	Deaths.	New cases.	Deaths.	New cases.	Deaths.	New cases.	Deaths.
July 11	1	1	0	0	0	0	0	0	1	1
12	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0
16	5	3	0	0	0	0	0	0	5	3
17	1	0	0	0	0	0	0	0	1	0
18	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0
24	1	1	0	0	0	0	0	0	1	1
25	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0
27	0	0	2	2	0	0	0	0	2	2
28	1	1	5	4	0	0	0	0	6	5
29	4	0	1	0	1	1	0	0	6	1
30	9	3	5	3	0	0	1	1	15	7
31	5	2	9	5	5	2	0	0	19	9
Aug. 1	16	5	4	2	1	1	0	0	21	8
2	8	3	14	9	5	2	13	1	40	15
3	13	4	13	5	5	1	4	4	35	24
4	27	4	9	8	0	0	9	1	45	13
5	26	10	28	10	11	6	*	*	65	26
6	29	10	86	24	16	11	45	26	176	71
7	78	26	38	32	17	8	3	7	135	73
8	43	7	35	20	35	18	1	1	114	46
9	94	26	35	24	24	7	1	1	154	58
10	83	12	45	21	14	4	0	1	142	49
Total.	444	118	329	169	134	61	77	43	984	392

* No report.

† Including four cases and one death in Pennsylvania Hospital.

SUMMARY REPORT.—(Continued.)

Date.	Private practice.		Hospitals.		Almshouse.		Arch street prison.		Total.	
	New cases.	Deaths.	New cases.	Deaths.	New cases.	Deaths.	New cases.	Deaths.	New cases.	Deaths.
Total to Aug. 10	444	118	329	169	134	61	77	43	984	392
11	76	14	41	†13	8	3	†1	3	126	33
12	66	12	*39	15	5	4	0	0	110	31
13	94	24	28	18	8	7	0	0	130	49
14	70	12	33	17	5	8	3	0	111	37
15	36	6	32	14	4	3	1	0	73	23
16	62	14	§31	15	1	1	0	0	94	30
17	49	11	36	13	0	1	0	0	¶90	26
18	53	11	21	7	0	0	0	0	74	18
19	20	5	25	6	4	0	0	0	49	11
20	31	7	22	9	1	0	0	0	54	18
21	27	4	24	3	0	0	0	0	51	9
22	20	4	26	4	2	1	0	0	49	9
23	11	4	20	6	0	2	0	0	33	10
24	21	4	26	5	1	1	0	0	48	10
25	16	5	7	5	1	0	0	0	24	10
26	7	1	23	5	0	0	0	0	30	6
27	5	1	16	6	0	0	0	0	21	7
28	5	0	11	2	0	0	0	0	16	2
29	7	2	13	2	0	0	0	0	20	4
30	8	2	12	1	0	0	0	0	20	3
31	10	3	13	2	0	0	0	0	23	5
Sept. 1	5	2	13	1	0	0	0	0	18	3
2	1	0	4	0	0	0	1	0	6	0
3	6	2	5	1	0	0	0	0	11	3
4	5	1	7	0	0	0	0	0	12	1
5	4	0	3	1	0	0	0	0	7	1
6	6	1	5	0	0	0	0	0	11	1
7	1	0	1	0	0	0	0	0	2	0
8	2	0	0	0	0	0	0	0	2	0
9	0	0	0	0	0	0	0	0	0	0
10	2	0	2	0	0	0	0	0	4	0
11	3	0	1	2	0	0	0	0	4	2
12	2	0	4	0	0	0	0	0	6	0
13	0	0	1	0	0	0	0	0	1	0
Total.	1175	270	874	342	174	92	86	46	2314	754

* One case, and one death in Walnut Street Prison.

† One death in Pennsylvania Hospital.

‡ One case do. do.

§ One case do. do.

|| Including five new cases and one death at the marine barracks.

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Table showing where the Cases of Private Practice occurred.

Date.	Kens.	N. L.	P. T.	City.	South.	Moya.	W. Phil.	Total
July 11	0	0	0	1	0	0	0	1
16	0	4	0	0	1	0	0	5
17	0	0	0	0	1	0	0	1
24	1	0	0	0	0	0	0	1
27	0	0	0	0	1	0	0	1
28	0	0	0	0	1	0	0	1
29	0	1	0	2	0	1	0	4
30	2	3	0	0	0	3	0	8
31	0	4	0	0	0	1	0	5
1	3	3	0	2	3	5	0	16
2	0	4	0	1	1	2	0	8
August 3	4	2	0	2	2	2	1	13
4	9	8	1	6	3	0	0	27
5	6	7	0	7	4	2	0	26
6	2	5	1	11	3	7	0	29
7	4	15	1	37	7	14	0	78
8	2	9	4	17	2	9	0	43
9	6	9	2	34	24	19	0	94
10	4	5	1	32	25	16	0	83
11	3	10	2	29	16	15	0	76*
12	7	5	3	27	12	12	0	66
13	8	8	4	29	24	21	0	94
14	8	4	5	22	19	9	2	70*
15	4	0	6	13	7	5	1	36
16	5	6	0	24	17	10	0	62
17	0	2	6	24	9	7	0	49†
18	1	3	2	24	13	9	1	53
19	3	3	1	6	4	3	0	20
20	6	3	1	9	10	1	1	31
21	1	4	0	11	4	7	0	27
22	1	3	1	9	3	3	0	20
23	1	2	0	3	3	2	0‡	11
24	6	4	1	6	3	1	0	21
25	3	0	0	3	8	2	0	16
26	3	0	1	1	1	1	0	7
27	1	0	0	1	3	0	0	5
28	0	0	1	0	4	0	0	5
29	0	0	3	2	0	2	0	7
30	2	1	3	1	0	2	0	8
31	1	1	1	3	3	1	0	10
Sept. 1	1	3	0	1	0	0	0	5
2	1	0	0	0	0	0	0	1
3	0	0	2	1	2	1	0	6
4	0	0	0	0	3	2	0	5
5	0	2	0	2	0	0	0	4
6	0	0	0	3	3	0	0	6
7	0	0	1	0	0	0	0	1
8	1	0	1	0	0	0	0	2
9	0	0	0	0	0	0	0	0
10	0	1	1	0	0	0	0	2
11	1	0	0	0	2	0	0	3
12	0	0	0	1	0	1	0	2
13	0	0	0	0	0	0	0	0
Total.	111	144	55	407	251	198	6	1175

* Including one case in Passyunk. † Residence of one case not given. ‡ Two cases in Passyunk.

Mortality of the Cholera at Quebec.—The resident population of Quebec is estimated at 27,000, and it is supposed that during the prevalence of the epidemic that the passenger population was 10,000, making a total of 37,000, of whom, up to the 3d of September, 2218 died of cholera.

The following table shows the interments and actual deaths from cholera at Quebec, from the 8th of June, (the day on which the malady first appeared,) to the 2d of September, inclusive. It is taken from the registers kept by the clergy.

June	9	6	Brought over	1654
	10	7	July 23	8
	11	29	24	9
	12	27	25	12
	13	70	26	7
	14	92	27	6
	15	143	28	9
	16	120	29	10
	17	97	30	10
	18	112	31	8
	19	117	Aug. 1	8
	20	122	2	9
	21	70	3	9
	22	78	4	5
	23	34	5	17
	24	33	6	8
	25	49	7	10
	26	40	8	4
	27	31	9	11
	28	21	10	19
	29	38	11	11
	30	33	12	18
July	1	31	13	23
	2	21	14	10
	3	25	15	16
	4	17	16	27
	5	24	17	22
	6	18	18	33
	7	10	19	26
	8	9	20	23
	9	14	21	13
	10	15	22	17
	11	7	23	16
	12	12	24	7
	13	11	25	8
	14	8	26	16
	15	8	27	24
	16	8	28	11
	17	8	29	11
	18	7	30	13
	19	11	31	11
	20	6	Sept. 1	13
	21	8	2	15
	22	7		
Carried over		1654	Total	2218

Table showing the Progress of Cholera at New York.

July.	Cases at dwelling houses.	Hospitals.	Bellevue.	Yorkville and Harlem.	Total of cases.	Deaths at dwelling houses.	Hospitals.*	Bellevue.	Yorkville and Harlem.	Total of deaths.	Deaths as reported by the city inspector.
4th	7				7	4				4	
5th	15	3			18	10	2			12	
6th	11	13			24	8	7			15	
7th	42	13	30*		85	6	6	13*		25	
8th	29	13			42	10	11			21	
9th	18	30	57†		105	4	10	14†		28	
10th	44	22	43		109	6	13	25		44	
11th	45	31	53		129	10	15	25		50	
12th	32	39	48		119	10	16	25		51	
13th	27	39	35		101	10	22	17		49	
14th	43	43	29		115	15	29	22		66	
15th	60	53	20		133	28	31	15		74	
16th	92	50	21		163	45	32	17		94	
17th	60	63	23		146	19	29	12		60	
18th	65	59	14		138	22	36	14		72	
19th	114	76	11		202	42	28	12		82	
20th	132	66	28		226	48	42	10		100	992‡
21st	191	100	20		311	61	33	10		104	116
22d	154	76	9	2	241	50	35	5	1	91	152
23d	163	42	26		231	46	17	20		83	108
24th	188	51	22	35	296	57	22	7	10	96	106
25th	99	45	10	3	157	21	32	5	3	61	110
26th	75	48	14	4	141	23	21	7	4	55	73
27th	73	46	3	0	122	23	18	5		46	63
28th	93	49	1	2	145	37	26	4	1	68	70
29th	61	58	1	2	122	19	15	3	3	40	85
30th	62	35	3	3	103	14	19	3	3	39	47
31st	59	52	1	9	121	23	20	3	2	48	53
Aug. 1st	47	39	4	2	92	13	24	3	1	41	53
2d	47	24	0	10	81	14	17	0	3	34	56
3d	48	36	1	5	90	14	8	1	1	24	34
4th	48	35	3	2	88	17	11	2	0	30	54
5th	57	38	0	1	96	21	8	0	0	29	39
6th	60	38	0	3	101	21	15	0	1	37	51
7th	57	31	0	1	89	19	12	0	1	32	28
8th	50	32	0	0	82	12	9	0	0	21	55
9th	47	26	0	0	73	18	10	0	0	28	34
10th	60	34	0	3	97	18	7	0	1	26	26
11th	33	41	0	2	76	18	15	0	0	33	47
12th	32	33	0	2	67	9	12	0	2	23	34
Total.	2640	1618	530	91	4877	865	735	299	37	1936	2490

* These include all in Bellevue Hospital from the 27th of June to the 7th of July.

† These include all in Bellevue on the 8th and 9th.

‡ Total to the 20th of July inclusive.

(Table continued.)

August.	Cases at dwelling houses.	Hospitals.	Bellevue.	Yorkville and Harlem.	Total of cases.	Deaths at dwelling houses.	Hospitals.	Bellevue.	Yorkville and Harlem.	Total of deaths.	Deaths as reported by the city Inspector.
Total to Aug. 12	2640	1618	530	91	4877	865	735	299	37	1936	2490
13th	63	41	0	1	105	16	6	0	1	23	36
14th	18	24	0	0	42	8	7	0	0	15	33
15th	33	29	0	13	75	14	8	0	4	26	27
16th	39	37	0	3	79	14	11	0	1	26	34
17th	28	25	1	9	63	11	8	1	1	21	32
18th	38	52	0	6	76	6	10	0	3	19	26
19th	28	27	1	1	57	9	9	0	0	18	25
20th	27	31	0	0	58	6	7	0	0	13	39
21st	24	20	0	8	52	8	6	0	4	18	16
22d	28	18	2	0	48	15	5	2	0	22	22
23d	31	36	0	5	72	17	7	0	4	28	31
24th	18	17	1	9	45	8	9	1	2	20	30
25th	20	17	0	0	37	5	9	0	0	14	16
26th	30	15	0	5	50	13	9	0	1	23	24
27th	29	9	1	1	40	12	1	0	0	13	38
28th	23	17	0	1	41	9	1	0	0	10	15
Total.	3117	2018	536	153	5814	1036	848	303	58	2245	2935

Note from DR. LEE relative to the original suggester of the use of Frictions with Mercurial Ointment, Camphor, and Capsicum in Cholera.—SIR,—I have observed in the last number of your Journal, a letter addressed by me to Dr. L. A. Smith, of New Jersey, in relation to the external treatment of collapsed cases of cholera, by the use of frictions of mercurial ointment, camphor and capsicum. Lest it should be inferred from the language there employed, that I laid claim to the credit of the above-mentioned remedy, (such not having been my intention,) it is due to Dr. S. C. Roe, principal physician of the Greenwich Hospital, to state, that he introduced the remedy into that institution, and that it was employed by myself, as his assistant, under his direction.

CHAS. A. LEE.

To Dr. HAYS.

New York, Sept. 23d, 1832.

Herpetology of South Carolina and Georgia.—JOHN EDWARDS HOLBROOK, M. D., Professor of Anatomy in the Medical College of South Carolina, Member of the Royal Medical Society of Edinburgh, Corresponding Member of the Academy of Natural Sciences of Philadelphia, is preparing for publication, "Herpetology of South Carolina and Georgia, or a description of the reptiles found in those states." The work will be completed in four numbers, quarto, of two hundred pages each, embracing full descriptions of the organization, habits, and localities of these animals.

Each number will contain twenty or thirty handsomely coloured engravings, from original drawings, by T. Sera.

Terms \$8 per No.; a number to be published yearly, oftener if practicable.

We have for several years known Professor Holbrook, as one of our most

zealous and accomplished naturalists, and we hail with joy this announcement his disposition to illustrate one of the most interesting departments brought up in the school of Cuvier, and devoted subsequently, with untiring assiduity, to the study of the organization and habits of the reptiles of the south, we know of no individual in this country better qualified for the execution of the task which he has undertaken. There is perhaps no region of country, within the whole circle of the American continent, so rich in the different varieties of reptiles as Carolina and Georgia, and as we know, from personal observation, that many of the species are entirely unknown to naturalists, we feel assured that every lover of natural history will rejoice at having this opportunity afforded him of acquiring information relative to a class of animals so infinitely diversified in their characters and so highly interesting in their habits.

We have had an opportunity of examining most of the beautifully coloured drawings from which the engravings are to be made, and we have no hesitation in saying, that in point of tasteful design and correctness of execution, they will bear a creditable comparison with any productions we have seen in the same department of the arts.

E. G.

Human Physiology; Illustrated by Numerous Engravings. By ROBERT DUNELISON, M. D., &c. Philadelphia. Carey & Lea, 1832. 2 Vols. 8vo. pp. 526 and 521.—We have much pleasure in announcing the appearance of this work, which will add to the already high reputation of the author. It is the most complete and satisfactory system of physiology in the English language. We shall have the pleasure of pointing out its particular merits in our next No.

Complete Treatise on Human Anatomy. By Dr. BOURGERY, with plates, lithographed from Nature, by N. H. JACOB. Translated from the French, by JOHN W. BREARLING.—M. A. Delaunay, of New York, proposes to publish this work, to the merit of which strong testimony is borne by competent judges. We have seen a few livraisons of the original work, and can testify to the beauty of the plates, and to the distinctness with which the different parts are represented. When we shall have an opportunity of examining the American edition we shall notice it more particularly.

We must take this opportunity of again recommending to our readers the colossal illustrations of Human Anatomy, by Professor Seerig, and the Anatomical Atlas of Dr. Weber, published by Mr. Schloss, of London. If the concluding Nos. of these works are equal to the 1st Nos. they may be pronounced to be unsurpassed for accuracy and cheapness.

G. BOISSZAU's Treatise on Fevers.—This work, of which we have already expressed our favourable opinion, (see Vol. VII.) has appeared in an English dress. The profession are indebted for the translation to Dr. J. R. KNOX. It should be in the library of every physician.

A Manual of Surgery, Founded on the Principles and Practice lately taught by Sir ASTLEY COOPER and JOSEPH HENRY GREEN, Esq. Edited by THOMAS CASTLE, F. L. S.—The fact of this work having gone through three editions in England, may be considered as sufficient evidence of its merits. It has been recently republished by Messrs. Monroe and Francis, of Boston, and C. S. Francis, of New York. The reprint is from the last London edition, which has been considerably enlarged; and contains many additional notes from the writings of various distinguished surgeons.

QUARTERLY MEDICAL ADVERTISER.

IN consequence of the extended circulation of the *AMERICAN JOURNAL OF THE MEDICAL SCIENCES*, the Proprietors intend, in compliance with the wishes of many of their Friends, to affix to each No. a Sheet of Advertisements. All Booksellers, Medical Gentlemen, and others desirous of taking advantage of this mode of announcement, will please address their Advertisements to *CAREY & LEA*, Philadelphia, by the 10th day of the month preceding that of the publication of the Journal, viz. on 10th July, 10th October, 10th January, and 10th April.

TERMS.

For one page	-	-	-	-	-	-	Six dollars.
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<i>Philadelphia, January 20, 1830.</i>							

PHILADELPHIA ANATOMICAL ROOMS.

DR. PANCOAST will commence his Winter Course of Lectures in the Philadelphia Anatomical Rooms, on Special and Surgical Anatomy and Physiology, on the 1st of November next. The Lectures will take place in the evening, four times a week, so as to enable him to give a complete course on those different branches. The Dissecting Rooms will also be open daily, for the accommodation of his class. Fee for the course, \$ 10.

October 24th, 1832.

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Baltimore, May, 1832.

Recently Published by

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ANATOMICAL REMARKS.

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Folio. Price \$5.

A notice of this work may be seen in No. XXIII. July, 1831, of the *New American Medical and Surgical Journal*, from which we make the following extracts:—

"We are free to confess our great regret at the necessity of delaying for an entire quarter the introduction of a volume so creditable as this one to our American medicine; for we do rejoice unfeignedly at every indication of an increased spirit of enterprise, an enlarged sphere of observation among the members of the profession—on this side of the Atlantic.

"We hold that the members of the medical body are under obligations to those, who, by a more formal and orderly method, that of short and hasty essays, notes of cases, &c. endeavour to secure them the more permanent results of study and observation; and that they ought to look with a favourable eye upon every such endeavour; judging the merits and usefulness of the production; however, with a critical and severe judgment, the more necessary perhaps among a people where a standard yet remains to be set up, and a national medicine yet to be formed.

"Though these reflections were occasioned by an examination of Dr. Darrach's work on the groin, we would not have them understood as bespeaking the favour of the public for that gentleman's performance—far from it, we feel confident that that favour will be accorded to it upon its own merits, and not upon considerations of what might be called good civism. The subject is too interesting to the surgeon, and the development of all the minute points connected with the operation for hernia too important, for it to fail of interesting all those concerned in those dangerous and difficult cases. The object of the publication are to add something to pathology and to precision in practice, to show the mechanical means employed in the human subject, to connect the anterior parietes of the abdomen with the lower extremities, and to furnish some observations on points of anatomy not heretofore noticed.

"Of the plates themselves, we can speak only in terms of commendation. Indeed, the fact that they were executed under the eye of the anatomist, from dissections made by himself, affords *prima facie* evidence of their correctness and clearness."

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TO READERS AND CORRESPONDENTS.

Communications have been received from Drs. WRIGHT, GRISCOM, LEE, WARD, ZOLICKOFFER, LINDSLEY, MARSH, YATES and ANDREWS.

We have received the following works:—

Human Physiology; illustrated by Numerous Engravings. By ROBLEY DUNGLISON, M. D. Professor of Physiology, Pathology, &c. in the University of Virginia, Member of the American Philosophical Society, &c. *Vastissimi studii primas quasi lineas circumscripsi.*—Huller. 2 vols. 8vo. Philadelphia. Carey & Lea, 1832. (From the author.)

The Anatomy and Physiology of the Organ of Hearing, with Remarks on Congenital Deafness, the Diseases of the Ear, some imperfections of the Organ of Speech, and the proper Treatment of these several Affections. By DAVID TON, Member of the Royal College of Surgeons. London, 1832. (From the author.)

Remarks on the influence of Mental Cultivation upon Health. By AMARIAU BRIGHAM. Hartford, 1832. (From the author.)

A Letter on the Cholera as it occurred in Cincinnati, Ohio, in October, 1832, addressed to Dr. SNOUT, of Lexington, Kentucky. By JOHN F. HENRY, M. D. (From C. W. Short, M. D.)

Letters on the Cholera Asphyxia as it has appeared in the city of New York; addressed to JOHN C. WARREN, M. D. of Boston. By MARTYN PAINE, M. D. New York, 1832. (From the author.)

Aus der Erfahrung geschöpfte Andeutungen zur Erhenutniss und Behandlung der Epidemischen Cholera. Von Dr. A. L. KOSTLER, k. k. Polizey-Bezirksarzt in Wien. 12mo. pp. 32. Wien, 1832. (From Dr. Von dem Busch.)

Praktesche Erfahrungen über de Natur der Cholera in Lemberg und Behandlung desselben. Von JOSEPH BERNES, ordentl. öffentl. Proff. der anthropotomie und assard. der Pathologischen anatomian der Universität in Lemberg. 8vo. pp. 16. Lemberg. 1831. (From Dr. Von dem Busch.)

Beschreibung eines Warme-und Dampfbadapparates. Von Dr. Lippich. Laibach, 1831. (From Dr. Von dem Busch.)

Archives Générales de Médecine, for August and September, 1832. (In exchange.)

Transactions Médicales; Journal de Médecine Practique, for July and August, 1832. (In exchange.)

Annales de la Médecine Physiologique, June and July, 1832. (In exchange.)

Journal Universel et Hebdomadaire, August, September and October, 1832. (In exchange.)

Revue Médicale, for August, and September, 1832. (In exchange.)

Gazette Médicale de Paris, August, September and October, 1832. (In exchange.)

Mémorial Encyclopédique et Progressif des Connaissances Humaines, September, 1832. (In exchange.)

The London Medical Gazette, for September and October, 1832. (In exchange.)

The London Medical and Surgical Journal, for August and September, 1832. (In exchange.)

The London Medical and Physical Journal, for September, 1832. (In exchange.)

The Medical Magazine, conducted by A. L. PIERSON, J. B. FLINT, and E. BARTLETT, Vol. I. Nos. 5, 6. (In exchange.)

The Western Journal of the Medical and Physical Sciences, Vol. VI. No. 2. (In exchange.)

The Western Medical Gazette, Vol. I. No. 1 and 2. (In exchange.)

The Boston Medical and Surgical Journal, Vol. VII. No. 15, to 23. (In exchange.)

The Dispensary of the United States of America. By GEORGE B. WOOD, M. D. Professor of Materia Medica and Pharmacy in the Philadelphia College of Pharmacy, Member of the American Philosophical Society, &c., and FRANKLIN BACHE, M. D. Professor of Chemistry in the Philadelphia College of Pharmacy, one of the Secretaries of the Philosophical Society, &c. &c. Philadelphia, 1833. (From the authors.)

For the gratification of our contributors we present references to the works in which their communications are noticed.

Professor MOTT's Case of Aneurism with Ligature beyond the Tumour, is noticed in *Froriep's Notizen*, for December, 1830; his case of Axillary Aneurism, is noticed in *Froriep's Notizen*, for July, 1831, and the *Bibliothek for Læger*, No. 1, 1832; his case of Ligature of External Iliac, is noticed in the *Revue Médicale*, for May, 1832; his case of Immobility of Jaw with Taliocotian operation, is noticed in *Gräfe and Walther's Journal*. Band. 17, 1832.

Professor SEWALL's Case of Spinal Disease, is noticed in the *Boston Medical and Surgical Journal*, for March, 1832.

Professor HENDERSON's communication on Pulmonary Consumption, is noticed in the *Revue Médicale*, for February, 1832, and copied in the *Western Journal of the Medical and Physical Sciences*, for January, 1832.

Professor GENDINOS' Remarks on the Use of Turpentine in Salivation, are noticed in the *Bulletin des Sciences Médicales*, for July, 1831.

Professor DICKSON's Case of Amnesia, is noticed in the *Bibliothek for Læger*, No. 1, 1832; and in the *Archives Générales*, for June, 1832.

Dr. BARTON's case of Longitudinal Section of Lower Jaw, is noticed in the *Bibliothek for Læger*, No. 1, 1832; and in the *Archives Générales*, for January, 1832.

Dr. RANDOLPH's Remarks on Morbus Coxarius, are noticed in the Bibliothek for Læger, No. 1, 1832, in the London Medical and Surgical Journal, for June 31st, 1832, and in Grafe and Walther's Journal. Band. 17, 1832.

Dr. HARRIS's Case of Enlarged Tongue, is noticed in the Bibliothek for Læger, No. 3, 1831, in the Bulletin des Sciences Médicales, for July, 1832, and Grafe and Walther's Journal. Band. 17, 1832.

Dr. MITCHELL's Treatment of Rheumatism, is noticed in the Revue Médicale, for February, 1832, in the Bibliothek for Læger, No. 1, 1832, and in the London Medical and Surgical Journal, for December 31st, 1832.

Dr. WILLIAMS' Account of the Use of the Conium Maculatum in Cancer, &c. is noticed in the Revue Médicale, for May, 1832, and in the Transylvania Journal, Vol. IV. No. 4, and his Remarks on Malt Poultice, are noticed in the Revue Médicale, for August last.

Dr. JACKSON's Remarks on the Use of Rhubarb in Hæmorrhoids, are noticed in the Bibliothek for Læger, No. 3, 1831.

Dr. HENDRIE's Case of Ruptured Uterus, is noticed in the Bibliothek for Læger, No. 3, 1831, and in Froriep's Notizen, for December, 1831.

Dr. FAHNESTOCK's Remarks on the Use of Compound Tincture of Benzoin in Burns, are quoted in the Bibliothek for Læger, No. 3, 1831, and in the Annales de la Médecine Physiologique, for June, 1831.

Dr. PHILIP's Case of Rattlesnake Bite, is copied in the Western Journal of the Medical and Physical Sciences, for January, 1832.

Dr. WRIGHT's Cases of Indurescence, Suppuration, and Excrescence of Testicle, and of Calcareous Deposit in Muscular Tissue, are copied into the London Medical and Physical Journal, for March, 1832.

Dr. VAUGHAN's Case of Hepatic and Splenic Derangement, is copied in the London Medical and Physical Journal, for January, 1832.

Dr. HORT's Case of Poisoning by Corrosive Sublimate, is noticed in the Annales de la Médecine Physiologique, for June, 1831, and in the Bulletin des Sciences Médicales, for July, 1831.

Dr. ATLEE's Remarks on Prussic Acid in Pertussis, are noticed in the Revue Médicale, for August, and in the Boston Medical and Surgical Journal, for May last.

Dr. MITCHELL's Case of Small-pox three days after birth, is noticed in the Bibliothek for Læger, No. 1, for 1832.

Dr. SKINNER's Case of Cholera Infantum, is noticed in the Boston Medical and Surgical Journal, for January 16th, 1833, and in the Western Medical Gazette, No. 2, Vol. I.

Dr. PICTON's Remarks on the Influence of Light on Small-pox, are noticed in the Revue Médicale, for August, 1832.

All the articles in Nos. 7, 8, 9 and 10 of this Journal, are analyzed in the Medicinisch-Chirurgische Zeitung, for July last.

Authors of new medical books, desirous of having them reviewed or noticed in this Journal at the earliest opportunity, are invited to transmit to the *Editor* a copy as soon after publication as convenient, when they will receive prompt attention. Under ordinary circumstances, very considerable delay is caused by the circuitous routes through which they are received.

Papers intended for publication, should be sent, *free of expense*, as early after the appearance of the Journal as possible, in order to be in time for the ensuing number. Such communications should be addressed to "CABEY, LEA & BLANCHARD, Philadelphia, for the Editor of the American Journal of the Medical Sciences."

All letters on the *business* of the Journal to be addressed exclusively to the publishers.

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THE
AMERICAN JOURNAL
OF THE
MEDICAL SCIENCES.

ART. I. *Personal Observations and Experience of Epidemic or Malignant Cholera in the City of Philadelphia.* By SAMUEL JACKSON, M. D. Assistant to the Professor of the Institutes and Practice of Medicine and Clinical Practice in the University of Pennsylvania.
[With two plates.]

HAD the numerous publications made since the occurrence of malignant cholera in its epidemic character been successful in establishing fixed principles in regard to its pathology or treatment, it would be unnecessary to swell the vast catalogue by new additions. Unfortunately this desirable result appears yet far distant, and it may be doubted whether any very close approximations have even been attained. While these important questions remain undetermined, while they continue to be the subjects of controversy, it is the duty of those who are favoured with extensive opportunities of observation, to continue to offer, in a candid spirit, unprejudiced statements of their experience and investigations on this formidable yet obscure disease.

The following observations hastily thrown together, are the results of my own personal experience, investigations and reflexions on the cholera as it has presented itself to me in this city, where it has so lately prevailed as an epidemic, in Montreal in the latter end of June and beginning of July, and in New York. The facts may be relied on, and may serve for others to form their own conclusions. The inductions I draw from those facts are my mode of understanding them—my method of viewing them, and are influenced by the anatomical and physiological principles I entertain—or the doctrines I have formed of the animal organization. They may be true—they may be false. Time, observation, experience are the tests to which they are submitted. Having no other object but truth in view, they

are not nurtured with a pertinacious spirit, and will be relinquished when other explanations of the nature of the symptoms, their mode of production, the elements of their composition, and their essential characters, shall be sustained by stronger demonstrative evidence, or more logical induction.

The succeeding general statistics of cholera will present some interesting lights, and may afford some insight into its general character.

The date of its appearance at Quebec, the first point known where the pestilential or epidemic influence reached our continent, or displayed its effects, was the 8th of June. It is distant from Scotland, the nearest point of the European continent where cholera was prevailing, about 3,000 miles. At Montreal, distant 180 miles from Quebec, it commenced on the 10th of June. In both places it spread with great rapidity, and in a very short period in both cities reached its maximum of daily cases and deaths. In Quebec this was on the 15th of June; in Montreal it occurred on the 19th of June—nine days from the commencement of the epidemic. It continued to prevail until the close of September—a period of three months.

The course of the epidemic in Canada was along the St. Lawrence, affecting the villages that line its banks, and extending to the farms of the open country. From the St. Lawrence it spread along the shores of Ontario, skirted Lake Erie, arrived at Detroit, and has penetrated by Lake Superior to the Mississippi.

The routes or lines of communication leading from the St. Lawrence to the United States, do not appear to have been the means of conducting it into our territories, or infecting our cities, notwithstanding the number of emigrants and others who penetrated into the country in those directions.

The disease first manifested itself in New York, June 24th. The subject of it was an old inhabitant of the city. The next four cases were in a different location, and occurred in the persons of Irish emigrants who had arrived at Quebec in the autumn of 1831, and had been residing in Albany from September to May, when they removed to New York. On the 27th of June a case of cholera displayed itself in the Bellevue Alms-house, three miles from the city, in an old woman who had been confined to the house for three years. It was not possible to trace it to any communication. In this establishment the epidemic was very fatal. It reached its maximum July 11th, and terminated August 4th. The whole number of cases was 530; the deaths, 298.

The Board of Health began to report the cases of the disease July 4th, when seven cases were announced. The climax of the epidemic arrived July 21st. It has since regularly declined.

The period from the appearance of cholera at Quebec, and to its appearance at Bellevue Alms-house, is nineteen days, and in the city of New York sixteen days. The distance in a direct line is about 450 miles.

All the cities and towns on the sea-board intermediate to these two points, Quebec and New York, were at this time unaffected with the disease, and with the exception of a very limited number of cases in New Haven, Newport, Providence and Boston, the others have remained entirely exempted from its visitation.

From the apparent progress of the disease from Asia into Europe, it was supposed to have been transmitted along the great routes communicating from one country to another. In the instance of Quebec and New York this general fact meets a contradiction. The disease commencing at Quebec ascended the St. Lawrence, and passed along the Lakes, until it reached the Mississippi and Missouri. It did not follow the land-route into the states.

In New York the disease commenced without a possibility to trace its immediate origin. The next point it struck was Albany, 180 miles above New York, on the Hudson, where it was manifested on the 3d and 4th of July, eight to ten days after its appearance in New York. Many of the intermediate towns have since been afflicted with its visitation.

In this city the first case of the disease occurred July 5th. The individual resided in the western part of the city, near the Schuyl-kill. No possible circumstance to account for the disease by communication existed. He had been affected with diarrhœa previously for three weeks. The second case took place in the Northern Liberties, distant from the location of the first at least a mile and a half, on the 9th of July. The next cases were on the 14th of July; two in Northern Liberties and one in Kensington; the first distant from the second case about a mile; the last about two miles. A few other scattered cases presented themselves at intervals, all in remote, unconnected points, until the 27th and 28th of July, when the epidemic influence acquired its full sway, and cases were daily developed. The epidemic attained its acmé on the 5th, 6th, and 7th of August, from which time it rapidly declined.

Taking the 27th of July as the proper commencement of the epidemic in Philadelphia, and the 1st of July as the same epoch in New York, we have twenty-seven days for the transmission of the epidemic. The distance in a direct line is between eighty and ninety miles.

The following table exhibits the cases and deaths in Quebec, Montreal, New York and Philadelphia, with the ratios of cases and deaths to population, and to each other. It is defective, as the re-

ports obtained do not include the whole period of the epidemic, but it will serve to give a view of the disease in those cities respectively.

Date of report and place.	Population.	Cases.	Deaths.	Ratio of cases to population.	Ratio of deaths to cases.	Ratio of deaths to population.
Sept. 2, Quebec -	32,000*	5783	2218	1 in 5 1-7	1 to 2½	1 in 14½
21, Montreal -	28,000†	4420	1904	1 in 6	1 to 2½	1 in 14 2-3
Aug. 28, New York	140,000‡	5814	2935§	1 in 24½	1 to 2	1 in 47
Sept. 13, Philadelphia	160,000	2314	935	1 in 70	1 in 2½	1 in 173

From this table, though it is not pretended to be perfectly accurate, as the estimate of the population of New York, cannot be more than an approximation, yet it is apparent, making every allowance for error, that in Philadelphia the epidemic influence had its force diminished, and its activity circumscribed.

The epidemic was not confined to any one part of the city, but was extended to every portion. In this respect it contrasts strongly with yellow fever, which has in every period of its prevalence been limited to the Delaware front of the city, the central and western part remaining exempt from the disease. Though cholera was generally diffused, yet it was more prevalent in some districts than in others. The difference appeared to depend on the character of the population.

The following table exhibits the cases returned to the Board of Health, arranged as to districts, with the ratio to the population.

	Population.	Cases.	Ratio of cases to population.
City - - - -	80,458	407	1 in 197 2-8
Kensington - - -	13,320	111	1 in 120
Northern Liberties - - -	28,932	144	1 in 200 11-12
Penn Township - - -	11,441	55	1 in 202 3-7
Southwark - - - -	20,740	251	1 in 82 9-28
Moyamensing - - -	6,822	198	1 in 34 5-11

The ratio of cases to the city population appears more unfavourable in the returns to the board than it was in reality. All the cases in the Alms-house, and in the Arch street Prison, which are located in the city, were given to the city, though the inmates of those establishments belong to all of the districts.

The unfavourable ratio for Southwark and Moyamensing is attri-

* Permanent population, 27,000; Transient population, 5,000.—Total, 32,000.

† Permanent population, 25,000; Transient population, 3,000.—Total, 28,000.

‡ Estimated as remaining by Mr. Leslie.—*Journal of Commerce*, August 8th.

§ Report of the Inspector.

|| Population within the bills of mortality.

butable to the character of a portion of their population, and not to the existence of any local causes. In part of Southwark and in Moyamensing, especially in their narrow lanes and alleys, reside some of the worst of our population as to habits of life; and in Moyamensing exists a large black population, who suffered severely from the epidemic. The coloured class, in comparison to numbers, was attacked by the epidemic in larger proportion than the white class. The following table exhibits this fact.

COLOURED CLASS.				WHITE CLASS.	
Cases.	Ratio of Blacks to White population.	Ratio of cases of Blacks to whole number of cases.	Ratio of cases of Blacks to coloured population.	Cases.	Ratio of cases to White population.
338	1 to 11 4-7	1 to 6	1 to 41	1977	1 to 74

The number of deaths from the commencement of the epidemic to the 1st of September by the weekly reports of interments was 909.

The following table presents the deaths from cholera, arranged according to periods of life and the ratio to each period.

Ages.		Number of Deaths.		Ratio of Deaths to whole Population of that age.	
Under 1 year	- - -	4	- - -	1	in 604
Between 1 and 2 years	- - -	4	- - -	1	503
2 5	- - -	30	- - -	1	912
5 10	- - -	39	- - -	1	919
10 15	- - -	19	- - -	1	188
15 20	- - -	22	- - -	1	96
20 30	- - -	179	- - -	1	81
30 40	- - -	228	- - -	1	60
40 50	- - -	159	- - -	1	46
50 60	- - -	100	- - -	1	28
60 70	- - -	71	- - -	1	102
70 80	- - -	47	- - -	1	212
80 90	- - -	5	- - -	1	36
90 100	- - -	1	- - -		
100 110	- - -	1	- - -		

The results of this table show that the earlier periods of life enjoy the greatest exemption from the attacks of the epidemic, especially the periods from two to ten years. The period of life most liable to attack is from fifty to sixty.

In relation to sexes the deaths presented the following ratio:—

	Males.	Females.
Under twenty years	539	370
70	48	

During the prevalence of the epidemic an augmentation of other diseases took place, with an increase of their mortality. The diseases which appeared to be thus influenced by the epidemic were those congeneric in character to the cholera, such as inflammatory diseases generally, gastric and enteritic disorders, gastro-enteritic fevers, inflammations of abdominal viscera. Scarlet fever, which has been prevailing for the last three years, acquired a new intensity during the cholera period. This last fact is an evidence, that during the height of an epidemic, other diseases will prevail, undiminished in force. The following table, arranged by Dr. EMERSON, from the records of the Board of Health, and who has permitted me to avail myself of it, illustrates the preceding positions.

DISEASES.	1831.				1832.			
	June.	July.	Aug.	Totals.	June.	July.	Aug.	Totals.
Consumption - - -	35	41	33	109	44	52	73	169
Convulsions - - -	18	26	29	73	28	29	33	90
Cholera infantum -	45	132	82	259	25	134	157	316
Diarrhœa and dysentery	18	28	49	95	15	47	83	145
Fevers - - - - -	17	24	35	76	31	35	55	131
Scarlet fever - - -	5	9	10	24	23	17	14	54
Inflammations in general	32	19	26	77	28	43	29	100
Inflam's in the chest -	16	10	8	34	16	15	7	38
Inflam's in the abdomen	16	9	18	43	12	28	22	62
Dropsy in the head -	22	22	29	73	5	33	23	61
do. in the chest -	2	4	6	12	2	4	3	9
do. in general -	6	12	19	29	3	10	9	22
Debility and decay -	28	33	29	90	16	45	28	89
Apoplexy - - - -	9	8	4	21	4	8	7	19
All diseases, (still-born deducted) - - -	294	467	490	1251	369	785	1431	2585
All diseases, (malignant cholera deducted)	294	467	490	1251	369	689	618	1676
Excess in mortality of 1832 - - - - -					75	318	941	1334
Excess after deducting mortality from cholera - - -					75	222	128	425

The following table exhibits the cases and deaths with the ratio, as occurring in private practice and the public institutions, as reported to the Board of Health.

	Cases.	Deaths.	Ratio of deaths to cases.
Private practice	1175	270	1 to 4 3-16
Hospitals -	874	342	1 to 2 5-9
Alms-House -	174	92	1 to 1 41-46
Arch street prison -	86	46	1 to 1 20-23

The cases reported in private practice are much below the number that actually occurred. The larger number of practitioners in respect-

able practice, reported those cases only that assumed the worst aspect of the disease, and others those only that proved fatal. Had the whole number of cases that might very properly have been regarded as cholera been reported, the proportion of deaths to cases in private practice, would have been as 1 to 70 or 80, or even more. .

After these preliminary statistical details of interest in the general history of cholera, I proceed to the consideration of the particular facts of the disease.

Before and at the period of the invasion of the disease, affections of the stomach and bowels were unusually prevalent. A general state of irritability existed in the alimentary canal, which rendered it liable to be disordered from slight causes that at other times would scarcely have been felt. This condition continued to increase, and during the last weeks of July and beginning of August, there were few persons in the city who were not complaining of feeling unwell from affections of this kind. It was not uncommon also for individuals to be affected at the same time with cramps in the lower extremities, or a feeling of tension, soreness and fatigue in the calves of the legs. It is hardly exaggeration to assert that in this period from fifty to sixty thousand people experienced this species of light disorder. This state of the animal economy was undoubtedly induced by the epidemic principle, acting on the whole community, and is an evidence of its existence, and the universality of its prevalence.

The causes productive of malignant cholera may be divided into predisposing and exciting. The predisposing are of two kinds, specific and common. The specific predisposing cause is the epidemic principle. The existence of this is known only from its effects—like all other specific predisposing causes of disease, its nature, origin, and characters, are unknown. We possess no means of bringing them within the action of our senses, and until that be done we can obtain no positive knowledge of them. We must be content with the inference that such a principle exists, as there is no other mode of accounting for the peculiar phenomena. It is this principle which gives origin to the disease as an epidemic. Acting over a large space and subjecting all the community at one time to its influence, the disease suddenly appears, rapidly progresses in society, numerous individuals being affected in a similar manner, with the same phenomena, and thus gives rise to the epidemic.

From the universal fact, that during the prevalence of epidemic cholera, nearly the whole community are suffering from disorder of the gastric and intestinal organs, it is a fair deduction, that the epidemic principle bears a specific relation to the alimentary mucous surface, acting on it in a manner to place it in an unnatural condition,

and impairing the important functions it executes. If we examine what that condition is, the phenomena appear to consist in an excess of irritability. These phenomena are, a furred tongue and pasty mouth; that is, the mucous secretions of the surface of the tongue and mouth are vitiated. The appetite is lessened or destroyed; the digestive power of the stomach is enfeebled; after eating there is a sense of weight, distention or other uneasiness in the stomach; the abdomen feels tight, uncomfortable, often painful; and the bowels are frequently disordered, the evacuations been preceded sometimes with pain, and accompanied with slight tenesmus; or being fluid and unattended with uneasy sensations. Now, all these phenomena are indicative of derangement in the vital activity of the gastro-intestinal mucous membrane, disturbing its normal state of being by its excess of vital force or increased activity. They are the symptoms constantly induced by those agents when taken into the stomach, whose known mode of action is to excite irritations in the vital tissues to which they are applied. From this cause is then imparted an undue susceptibility to impressions, a too great degree of vital reaction, and consequently disorder of the functions of digestion, of chylication, of fecation, and a vitiation of the secretions of this extensive surface, and the muciparous glands that enter into its structure.

Such is the induction, and it is intended as no more, that I would make, from the only primary phenomena we can detect, as to the kind of influence exerted on the animal organism by the unknown epidemic specific principle, giving origin to epidemic malignant cholera. If there be any other influence it is not appreciable, and any consideration of it would enter into the learned category of *speculative data*, and as such is not within the scope of our present design.

The *common predisposing causes* are an enfeebled constitution and imperfect health, especially as connected with derangement of the digestive and alimentary organs, and more particularly originating in habits of intemperance, or from an innutritious and impoverished diet.

To these circumstances are to be attributed the greater proportion of cases amongst the aged, the labouring poor, the wretched, those broken down with toil and bad diet, or who have ruined their health by the grossness of dissipation.

According to the table of deaths to the periods of life, the periods when most perish from cholera are from fifty to ninety years—particularly the periods from fifty to sixty. Now this last period, is that at which feeble constitutions approach their term of duration, and ~~when~~ originally good constitutions, destroyed by irregular habits, have reached a premature senescence, and early succumb to any severe attack of disease.

In the animal economy the various organs which compose its complex mechanism, balance each other as to their forces of life and their supplies of the vital nutritive element essential to the natural state of being and vital reaction of each. In a good constitution the natural balance exists perfect—the individual enjoys robust health. In this state each healthy organ, endowed with all its forces, offers a proportionate resistance to the departure of any other organ from its natural order; it refuses all diminution of its original sum of vitality, and an abstraction of its just proportion of vital fluid. But, as in all diseases of augmented action in any one organ, this state of increased vital reaction can be maintained only by an increased sum of vital force and augmented proportion of vital nutritive fluid, which can be obtained alone at the expense of the other organs, their resistance to this demand, always proportioned to their actual force, is protective against those impressions of an aggressive character excitative of disease in any one organ or apparatus of organs. It is in this manner that general force or tone of the organism protects, to so great an extent, against the local disturbances of particular organs, which is the commencement of nearly all diseases.

On the contrary, when the organism is enfeebled, or general debility is induced by any of those causes which deteriorate the functions whose healthful exercise is connected with nutrition and the maintenance of the vital activity, impressions on any one organ exert their full force. The vital reaction they excite, possesses so much more power than that which belongs to the other organs or tissues, as to overcome its resistance. The organ on which the morbid impression is exerted becomes a point towards which are directed, and on which are concentrated the vital forces, and the circulating nutritive fluid, which are thus abstracted from and diminished in the rest of the organism, in a degree corresponding to the extent and importance of the surface and organ affected, and the intensity of the pathological reaction excited.

In a state of health, and in a sound constitution, a just equilibrium prevails in the distribution of the vital forces and the circulating nutritive fluid amongst the various tissues and different organs which constitute the animal organism, proportioned to the nature of the structure, the activity and importance of the functions of each.

The vital forces and the circulating nutritive fluid, are the only moveable elements of the organism that can be influenced immediately by the agents capable of acting on the tissues and organs, producing prompt and almost instantaneous modifications or changes in them. The solid elements of the organs are affected, and exhibit *sensible* modifications or changes only after a considerable pe-

riod. These changes of the solid materials of the tissues and organs can result alone through the process of nutrition, which is a slow and gradual process. We are not to look for the evidences of a morbid state in the solids in the commencement of diseases, and more especially of acute diseases: they can be manifested alone by the fluid elements of the tissues, and in the activity of the vital and functional phenomena. Now, the phenomena the most generally recognised, if not the exclusive phenomena of disease in its inception and acute periods, are the destruction of the equilibrium constituting the natural or healthy mode of existence, of the vital forces, and vital nutritive fluid, as distributed throughout the organism—and the recuperative efforts of the economy for its restoration. Other effects follow in the train of these, and enter necessarily into the history of disease and of its characters, but *they* are the first link in the chain of pathological sequences, and the most important to seize on, and duly to appreciate.

The ancients, not without some foundation, regarded the animal organism as a microcosm or epitome of the world. The organs are truly so many independent powers, but so connected for their mutual support that none can exist without the aid of the more important, or enjoy a perfect state without the concurrence of even those of least consequence. Each possesses its peculiar organization or constitution, its specific forces, properties, relations and functions; and for the preservation of the whole economy in the enjoyment of a healthful condition, a balance of power is not less essential than it is in the republic of nations for the maintenance of rational independence and public liberty.

Neither of the aforementioned predisposing causes alone are capable of producing cholera, but where the two meet in the same individual, they are adequate without any particular exciting cause to develop the disease. These instances are not, however, common.

The specific predisposing cause, or epidemic principle, is essential to the production of cholera; the common predisposing cause or debility is only an accessory. It imparts a liability to cholera only as it bestows a susceptibility to the attack of any other disease.

From these views of the predisposing causes of cholera is derived a first rule of prophylactics or method of prevention; which is, to carry the nutrition and development of the forces of the different organs to the highest point within the physiological range—or the imparting of general tone, vigour and animation to the whole economy.

This rule is rendered effective by the adoption of a tonic and laborant regimen, consisting of the most nutritious and easily digested

aliment, taken in quantities not sufficient to oppress or disturb the operations of the stomach. The fermented liquors perfectly ripe, if individuals could be induced to use them in great moderation, and the sound and tonic wines, as port or sherry, would conduce greatly to the same end.

The *exciting causes* of the disease are various and numerous. In fact, whatever is capable of producing a powerful impression on the economy, or occasions disturbance in any of its important functions, more particularly of the digestive apparatus, whether it be of a physical or moral nature, may become an exciting cause of malignant cholera, in an individual whose system is predisposed to the disease, from being under the influence of the epidemic principle.

The most common of the exciting causes are, however, such as act directly on the alimentary canal. All kinds of aliment difficult to digest, which resist the action of the stomach, which pass unchanged in their characters into the intestinal tube, by the disorder they create in the stomach and bowels, are the most usual of the exciting causes of the disease. Of this character are crude vegetable food, unripe fruits, or in those of bad digestion, any kind of fruit. Vegetable food is always more difficult to digest than animal food; and in individuals whose digestive functions are impaired, vegetable food of a crude character invariably is productive of great inconvenience, of painful and distressing feelings, and sometimes of violent disturbance of the stomach and alimentary canal. Now, during the prevalence of epidemic malignant cholera, almost every one is suffering in the functions of the digestive organs. The whole community nearly are, for a time, dyspeptic, and the same precautions are required, both as regards the quality and the quantity of food, as in patients labouring under that disease. It is this change wrought in the state of the digestive apparatus, and the enfeeblement of the digestive functions, rendered incapable of assimilating vegetable food, and no alteration in the nature of the food itself, that causes vegetables suddenly to become so frequently productive of disordered states of the stomach and bowels during the epidemic period, and so common an exciter of the disease.

Although crude vegetable aliment is preëminent as an exciting cause of the disease, yet its attacks may likewise be induced by animal food, when eaten to excess, or its quality is defective. To speak with great precision, it is not the food that is the exciter of the disease, but the indigestion which ensues when food is taken either as to quality or quantity incompatible with the state and forces of the stomach. Vegetable more frequently is at variance with the digestive forces than animal food; but when animal food, from its quantity will

cause an indigestion, or it be of a quality that produces the same result, and of this character are pork, smoked and dried beef, clams, crabs, lobsters, &c. then an attack of cholera will be invited, equally as by vegetables.

Liquid aliment exerts no small share of influence on the production of the disease. All acid drinks, particularly cider, thin, sour wines, bad water, very cold water, ices, new beer, porter or ale, by deranging the stomach and bowels, are causes of attacks. The dry, tonic and astringent wine, old, strong, well-fermented malt liquors, a *little brandy* in water, at dinner, if individuals will limit themselves to a small quantity, by invigorating digestion, are prophylactic or preventive of the disease.

All general rules must have exceptions. The *golden rule* is, that whatever agrees with the stomach of any individual, digests with facility, or promotes digestion, is to him the best, and is so far protective; and whatever resists his digestive power, or disturbs his alimentary functions, that is injurious, and exposes him to be attacked by the epidemic.

Moral emotions have been observed in repeated instances to prove exciting causes of the disease. They are all, however, such as are known to have a concentrating influence, imparting a movement of the circulation from the exterior to the interior surfaces, and to derange very seriously the gastric and intestinal functions. The moral exciting causes of malignant cholera, have been fear, grief, and despair, awakened by the sudden and destroying blight withering the bright prospects of life from the loss of relatives, connexions, and friends. The excitation of these passions has often presented the most desolating scenes. Numerous members of a family, united by the tenderest ties, have, in the rapid succession of a few hours, been consigned to the grave. The disease, called into existence by those causes, assumes an intensity of character, and acts with an energy of destruction that baffles all attempts to arrest its progress.

Of the other exciting causes, it is proper to enumerate and to point out unwholesome effluvia, and exhalations of all kinds, capable of affecting the animal economy, and are known especially to disorder the stomach and bowels. The putrid emanations escaping from animal and vegetable matters in decomposition belong to this category. Hence arises the necessity of the most complete attention to cleanliness in cities; to the exertions of an active police, preventing the accumulation of offals either in the streets, lanes, private alleys, and the premises of individuals; and the immediate removal and destruction of similar offensive substances. A strict supervision is also required over warehouses, where are stored hides, provisions, grain, and ve-

getables in bulk, in order to prevent the mischief that frequently arises from this source.

The vitiation of the atmosphere from crowding in a small space a large number of individuals, has been another prolific exciting cause of malignant epidemic cholera. It is a well-recognised fact, that every individual vitiates, by the process of respiration and the exhalations from his body, a certain quantity of atmospheric air. For healthful existence, for the due exercise of the animal functions, a necessity is thus created, that each individual should be surrounded by a certain space of air constantly renewed. When this most salutary provision is neglected, and too many persons are brought together and live in confined apartments, their health is impaired, their organism is deteriorated in its structure, their functions are disordered in their performances, and their vital forces are degraded. In such situations, whenever epidemics prevail, those who inhabit them are the most severe sufferers, and furnish the greatest number of victims to the destroyer. Dwellings in narrow courts and in lanes, crowded with inhabitants, are the chosen seats of pestilence in all cities. The Bellevue Alms-house in New York, the Arch street Prison and Alms-house of this city, are noted and striking instances of the deleterious influence on the constitution, flowing from this cause, and its coadjuvancy in calling into existence the pestilence in its most malignant and direful aspect.

Marsh exhalations—malaria, the common causes, at other periods, of intermittent, remittents, and of dysentery, are exciting causes of malignant cholera during the epidemic period. The economy acted on by the epidemic principle, and already disordered in its functions, is predisposed to assume the *type* of cholera, under any perturbing or disturbing operation. The malaria poison, in this condition, brought to display its energy on the organism, developes, instead of its more usual effects, cholera, which is on the point of exploding, and requiring only an unusual disturbing impression deranging the harmony of the organs and the balance of their forces, for its production. From this circumstance it is, that the situations often the first to suffer from cholera, and to experience its worst ravages, are those the most subject to be affected with the various gastric and intestinal diseases, the fall fevers, originating from malaria. We possess in this fact also the explanation of the apparent affinity of epidemic cholera for streams and water-courses. They are the especial seats of malaria; the banks of rivers and creeks have ever been noted for their unhealthiness, for the production of fevers and dysenteries; and it is the localities where those diseases are commonly most

rife, that next to large cities, cholera is the most early displayed, and the most severe in its devastations.

Canal diggers, graders of rail-roads, canal and river boatmen, exposed by their employments to the noxious malaria, suffer terribly from fevers having this origin. Along our canal lines, the work has frequently been suspended in the autumnal months, from the havoc amongst the labourers proceeding from febrile diseases. This class presented the first victims of the disease in New Jersey, and in portions of the interior of this state were the principal, if not exclusive sufferers. I am informed by Dr. MIFFLIN, who was engaged by the Schuylkill Canal Company to attend on the workmen and boatmen on the Schuylkill, that in the middle of September the disease broke out amongst the Irish labourers employed in the rail-road on the top of Broad Mountain, seventeen hundred feet above the level of the sea. This location is several miles distant from the main road, and in a country destitute of inhabitants. The turning up of the virgin soil, which has remained undisturbed for centuries, in the summer season or autumnal months, the period generating terrestrial exhalations, in this country, it is well known, is productive of fevers often of malignant character. To this cause, as immediately exciting the disease, is to be attributed the cholera in this gang of labourers in so elevated a region.

Other exciting causes of the disease might be enumerated, but, as they are less common than the preceding, and somewhat accidental in occurrence, it is not requisite to notice them.

A knowledge of the predisposing and exciting causes of the disease, will enable us to understand many circumstances that have been regarded as almost inexplicable anomalies in its history, progress and development.

The specific remote cause of epidemic malignant cholera—the epidemic principle—appears to approach a district of country gradually, augmenting in intensity, acquiring its acmé of force, and then slowly declining, passes away. The epidemic is usually preceded by affections of an analogous or congenerous nature to itself, and its close is characterized by similar diseases, in both periods evidently the product of the epidemic principle in a light form. When it has reached a certain power the epidemic commences, and it explodes first in those positions where are congregated the subjects of the disease in the greatest numbers, and where the exciting causes of the disease are the most active and most numerous. Bodies of troops in active service, exposed to the hardships of a campaign, are, from these causes, the first often to feel the effects of the epidemic. The suburbs of

large cities, in which always are collected the most wretched, destitute, and abandoned portion of the population of a country, are generally the first amongst locations where the epidemic commences its ravages. The towns and villages on the banks of rivers and water-courses, are the next to suffer, and in this respect great diversities are observed, explicable by keeping in view the exciting causes of the disease. The situations the most unhealthful, that are low, damp, surrounded by marshes, or where exhalations and malaria are produced by any local circumstances, will be invaded by the disease, while those that are elevated, dry, and possess a pure atmosphere, escape. Situations thus differently characterized will often be in the vicinity of each other. The one will be devastated by epidemic cholera; the other will be exempt, or the inhabitants at most suffer from that light state of the disease termed cholérine.

A body of troops in good health have encamped on the banks of a stream, in the vicinity of a jungle or other position whence arose pestiferous exhalations. Very soon cases of cholera were manifested, and of malignant character, rapidly succeeding each other. The encampment was removed a short distance to a more salubrious site and purer atmosphere. The disease has immediately ceased. In those instances the circumstances of the locality are explanatory of the facts. The malaria acts as an exciting cause on subjects predisposed by the pervading influence of the epidemic principle to assume a specific form of disease. Without this predisposing cause, simple fevers or the common jungle fevers would have been the form of disease developed by the miasmatic poison. The change of position, by withdrawing from the operation of the exciting cause, terminated the disease, leaving merely the predisposition to its attacks common to every one in the same district, and liable to similar attacks whenever an exciting cause of sufficient activity and energy are brought to act on their systems.

From this examination of the causes of cholera, I now proceed to the investigation of its *pathology*, or the modifications of the forces, actions, structure and functions of the organ constituting the disease.

In determining the pathology of disease two guides are to be followed; 1, the symptoms or phenomena prevailing during life which make known the existence of disease; 2, the alterations of structure detected by autopsy after death. Each of these possesses its peculiar advantages; neither, exclusively, can be implicitly relied on.

Symptoms, which are the external signs or manifestations of disease, arise from the disordered functions of the organs or tissues af-

fect. Similar symptoms attend on opposite conditions of the same organs. To understand their real meanings, the physician who observes and studies them, must be thoroughly proficient in the knowledge of the structure and functions of the organs, their relations and dependencies. If he be wanting in this information he cannot understand them. They are only known when they can be correctly translated into anatomico-physiological language, expressive of the mode of the structure, the functions, and vital reaction of the organ. When this cannot be done we may be assured, the knowledge assumed is conjectural, and the practice founded on it must be empirical.

The alterations of structure ascertained by instructed observation, accurate and minute, is of great value. It fixes the location of disease and points out the source of the symptoms that existed. Too much, however, is claimed for pathological anatomy. The structural alterations are not the disease. They are the consequences only, and must no more be confounded with the disease, than the alterations of the secretions are to be regarded in the light of disease. Softening, thickening, hardening, ulceration, hypertrophy and other unnatural modifications of the tissues, are no more disease, than is pus disease, or lateritious urine, or the bile and mucus ejected from the stomach or bowels are disease. They are all consequences, they are effects, modifications of the physiological phenomena in which consist the organic circulation, nutrition and secretion.

Pathological anatomy furnishes data from which the pathologist may commence, guided by physiological principles, observation and experiment in order to arrive, by the means of a strict induction, to a knowledge of the essential characters of the disease. This is the extent of the benefits it promises to our science. In many cases it necessarily fails entirely, or nearly so, in elucidating either the seat or the character of disease. When death supervenes rapidly in the space of a few hours in acute and violent affections, alterations of structure cannot be detected. To their production time is required. Tissues cannot soften, harden, thicken, ulcerate, become hypertrophied, atrophied, or converted into an anormal organization except by the slow process of modified nutrition. In vain will a *LOUIS*, *ANDRAL*, or *CRUVEILHIER* seek with their scalpels to reveal the seat, or extent, or the nature of the vital modification, that had existed during life, had caused the destruction of the patient, and been obliterated in and by the very act of dying.

In pathological investigations both methods are to be employed—the anatomical, to determine the location of the lesion, the period of

structural alteration induced—the physiological for the explanation of the symptoms, and the elucidation of the modification of the vital reaction, giving origin to the symptoms or disordered function, and the morbid structural derangement.

These remarks have been called forth by the conflicting doctrines on these points embraced by opposite parties. The rigid physiologists with BROUSSAIS at their head are too much disposed to underrate pathological anatomy, though Broussais' work on *Chronic Phlegmasiæ* really gave to this department of science the great vogue it now maintains. Louis, who we suspect possesses a very slight knowledge of physiology, and his followers, regard physiology of little or no importance, and pathological anatomy as alone offering the means of ascertaining the nature of morbid lesions—avoiding an exclusive adhesion to either aid will be invoked from both in the following investigation.

The cholera as it appeared and prevailed in Philadelphia, presented no characters different from those which have been described by so many writers in Asia and Europe. The only symptoms I observed, which have not been noticed, as far as I am informed, by previous writers, was a spontaneous vesication that occurred in two patients in the hospital under my charge, and in one of the out-door patients residing in the vicinity of the hospital. They were all blacks, and the disease fatal. The cuticle was elevated by effused serum, and separated as though caused by the application of a blister. In the first case I was so much impressed with the belief that the effect had been the result of a blister, that I expressed my dissatisfaction of its application to the forehead and face. In most of the patients in my hospital a strong tendency to vesication appeared to exist. Frictions with spt. camphor in repeated instances caused a complete separation of the cuticle. In the commencement of the disease a terebinthinate decoction of cantharides was employed as a rubefacient, but it was very soon laid aside in consequence of the extensive vesication and loss of cuticle that succeeded its employment.

From the close similarity of the disease, to the descriptions so frequently repeated by the numerous authors who have made it the subject of their writings, it is wholly unnecessary for me to reiterate the general catalogue of its symptoms.

The disease presented five different periods or trains of symptoms, each constituting a different condition of the animal economy. These did not occur in every case. On the contrary, there often existed but a single group of symptoms, but one condition or period of the disease. It was arrested here, either by the recuperative operations of the organism, or by the remedial processes of art, and did not

pass into another period or stage. In other cases two or three of the periods would occur passing with more or less rapidity from the one to the other; it was rare that the whole of the periods took place; the disease terminating very early in the first, second or third period, by a recovery, or ending fatally in the fourth. In the City Hospital, No. 5, under my charge, there were admitted sixty-nine patients; sixty-two of well-marked cholera in its various stages. Of this number five only exhibited all the periods.

The periods or groups of symptoms manifested in the disease are the following:—first period, of incipient irritation or the premonitory stage; second period, of confirmed irritation or forming stage; third period, of incipient concentration, commencing collapse or algid state; fourth period, of complete concentration, confirmed collapse or perfect algid state; fifth period, of reaction or febrile state.

The following tables will exhibit the proportions of these periods in the cases which came under my immediate charge. In Hospital No. 5, sixty-five cholera patients.

First period—incipient irritation, - - - - -	5
Second period—confirmed irritation, - - - - -	21
Third period—incipient concentration, or collapse, - - - - -	14
Fourth period—confirmed concentration, or complete collapse, - - - - -	20
Fifth period—reaction, or febrile state, - - - - -	5

In private practice, I attended fifty-five patients, who were so unwell as to require medical treatment at their domicils. Of those who called at my office, affected with the symptoms of the first period in a slight degree, I kept no account.

First period, - - - - -	26
Second period, - - - - -	23
Third period, - - - - -	5
Fourth period, - - - - -	1
Fifth period, - - - - -	0

I attended further in consultation in eight cases, to which I was invited after the treatment was commenced. They stood as follows:—

First period, - - - - -	0
Second period, - - - - -	2
Third period, - - - - -	1
Fourth period, - - - - -	5
Fifth period, - - - - -	1

The above tables exhibit the difference between hospital and private practice, and explain the greater mortality of the first. The patients of the hospitals are from the very lowest portion of society—individuals who are accustomed to neglect light affections, or whose

sensibility is so much blunted by their mode of life, their privations, exposure to every kind of hardship, and by incessant labour, as to be scarcely conscious of the first approach of disease. They claim medical assistance only when the advance of disease utterly disables them from attending to their daily employments, confines them to their bed or house, or prevents the supplies of their wants. Hence it is, that in epidemic cholera, when first brought to the hospitals, especially in the commencement of the epidemic, the patient presents the symptoms in their most aggravated shape, and advanced into the last period of the disease.

First period—incipient irritation.—The symptoms of this period are often the direct result of the epidemic principle acting on the economy, and disturbing the mode of being or condition of some organs, usually the digestive. They are commonly termed premonitory signs or symptoms. I believe it preferable to designate them in a manner to indicate their nature, or the state of organs on which they depend.

Most commonly the symptoms of this period are developed in consequence of the diet, or some article of food not being in accordance with the actual condition of the digestive apparatus; the natural relation being the forces of the organs, and the aliment being destroyed. In this state the aliment causes the same effects, produces the same kind of disturbance in the digestive apparatus, as results in ordinary circumstances from the presence of foreign matters incapable of assimilation. They occasion an indigestion, or excite in the stomach and in the intestines an irritation analogous often to that of an emetic, or a purgative. If the aliment be not adapted in its quality or quantity to this altered condition of the digestive powers, nausea, vomiting, and purging will be the more frequent consequences. But, by an adaptation of the aliment as to its quality and quantity to the actual condition of the digestive organs and functions, these symptoms do not occur, and the patient merely experiences that slight uneasiness which is characteristic of dyspepsia in its earlier stages. The digestion is embarrassed; a sentiment of plenitude exists in the epigastrium; the belly feels uncomfortable; there are feelings of heat in the abdomen; the tongue is white, is more or less furred; the appetite is lost or irregular, and a tendency to diarrhœa prevails. Such are the general features produced in the first period when the symptoms are not excited or aggravated by imprudence in diet and regimen.

The temperament of the individual, his constitution, and other similar circumstances in all diseases, modify the symptoms. Their in-

fluence is particularly apparent in malignant epidemic cholera. In the first period two different trains of symptoms are exhibited depending on the particular temperament and constitution.

In the sanguine temperament the symptoms partake more of the inflammatory character. The pulse is often full, the thirst is urgent, nausea, vomiting and purging are more frequent, and especially if this be conjoined with a bilious or hepatic predominancy; the discharges then frequently contain some bile. Cramps, spasms, and violent pains, are in these subjects light, or do not exist, and are entirely secondary in importance.

In the nervous temperament, the predominant symptoms are of a nervous character. The patient suffers from excruciating spasms of the stomach and bowels, neuralgic pains in the limbs and the body, with cramps of the voluntary muscles, while the disturbances of the digestive and intestinal functions appear of secondary consequence, or are sometimes wholly wanting. Notwithstanding the severity of the nervous symptoms, the primary irritation is fixed on the digestive mucous tissue, and the nervous symptoms are induced, and acquire their intensity from the great activity of the nervous functions connected with the larger development of the nervous structure.

The following cases will illustrate the different forms of the disease in the first period, or group of symptoms modified by the temperament.

CASE I. Temperament sanguine; diarrhœa; pain in abdomen; fainting; pulse full.

James M'Neal, aged twenty-four years; a white; stage driver; good habits; ruddy complexion; brown hair. Entered the hospital August 23d, at 1 P. M.

For several days he had been affected with diarrhœa; had headache and pain in the umbilical region. A short time before coming to the hospital he had fainted.

Present state.—The diarrhœa continued with pain in his bowels; pulse full and has force; tongue furred and of natural temperature. Dr. TUCKER, the hospital physician in attendance, directed v. s. $\frac{3}{4}$ xvi. and cups to the epigastrium; cold gum water and arrow-root for diet, with an opiate. The symptoms were arrested in the course of the day.

August 25th.—Discharged well early in the morning; cautioned as to his diet. Returned at 2 P. M. with renewal of the pain in the umbilical region, in consequence of eating indigestible food. Cups were applied to the abdomen with prompt relief. The patient was

kept under observation until the 1st of September, and discharged well.

CASE II. *Temperament highly nervous; spasms; pain in abdomen and chest; universal cramps; difficult respiration; coldness; feeble pulse; no vomiting or purging.*

Mrs. C. aged twenty-four years; delicate constitution; light complexion; fair skin. Saturday, August 11th, felt general uneasiness and sense of coldness; had head-ache, loss of appetite, and extreme lassitude; kept her bed, but took no medicine. A plaster of mustard and ginger applied to the abdomen caused warmth in the surface, and gave relief to the unpleasant feelings.

Sunday, 12th.—Symptoms much increased; feeling of numbness in feet and hands; great oppression in the chest, amounting to orthopnea. Soon after cramps commenced in the toes, extended to the calves of the legs, and in a short time the whole muscular system was invaded. The fingers and toes were almost constantly contracted. Spasms seized on the muscles of the abdomen, chest, throat, and extremities, while the bowels appeared equally to be affected with spasms. Surface cold; thirst excessive—constantly demanding cold drinks.

The patient was visited by Drs. ELKINGTON and WILTBANK. Blood had been taken from the arm, which had partially relieved the oppression of the chest. Frictions and sinapisms had in some degree allayed the spasms. The symptoms still continuing with severity, I was requested to see the patient in consultation in the evening.

At this time the most distressing symptoms were, great oppression in the region of the heart; pain throughout the chest; respiration irregular and difficult, with frequent cramps of the muscles, and spasmodic pains. The temperature was below the natural standard; the skin pallid; the pulse small and frequent; thirst still intense. The stomach and bowels had not been affected. Cups were directed to be applied to the chest and præcordia; a ℥ss. of solut. of morphia; iced carbonated water for drink, with injection of spt. camphor in solut. of carb. soda.

August, 13th.—Relief had immediately ensued on the application of the cups. The pains and oppression of the chest, the cramps had disappeared. The pulse was fuller and slower, and the temperature restored. Convalescence immediately ensued.

In the above cases are presented specimens of the first period of the disease as displayed in the sanguine, and in the nervous temperament. In both the symptoms are strongly marked. That the dis-

ease had not progressed beyond the first period, appears evident from the rapidity with which the symptoms were subdued. Many similar cases might be adduced, but the two will be sufficient to characterize the classes of cases.

In the first or period of incipient irritation, in immense numbers, the symptoms were much lighter than in the cases cited, and required a much less energetic treatment, or disappeared under the influence of a properly regulated diet. The symptoms in a great number, never proceeded beyond this stage, but continued recurring every day or two, from one to two weeks, causing the person to feel unwell without being positively ill. Those individuals generally possessed good constitutions, enjoyed good health, possessed the comforts of life, were regular in their habits, and attentive to their mode of living.

Second period—confirmed irritation.—This period of the disease, was preceded in every case in my private practice by the first. In hospital No. 5, the same fact generally prevailed, though in two or more instances, it was doubtful. But in the class of persons who form the patients of a hospital, it is exceedingly difficult to obtain accurate information. It is requisite for this purpose to renew the inquiries frequently, and to vary the manner of expression. I have often been answered in the affirmative, when I had asked if the bowels had been regular; and immediately afterwards when the question was made direct as to the number of times the privy had been visited, was told ten or twelve times in the course of the morning. Without great caution, errors in this respect will be made. Intemperate persons are very subject to attacks of nausea, vomiting, and diarrhœa, and these symptoms in the first and second periods of the disease, are attributed by them almost universally to their habitual complaints. They take no notice of them, and unless the inquiries are made in a very direct manner, they will not be alluded to by the patient. I have known such patients in the state of collapse to assert that the disease came on without previous symptoms, and when brought to acknowledge they had been affected with diarrhœa or vomiting, to treat it as a matter of no consequence, from being subject to great looseness and sickness of stomach.

The symptoms of this period are most usually called into existence by some of the exciting causes already enumerated. They are the symptoms of the first period exaggerated, augmented in force, from the greater intensity of irritation developed, the extent of the surfaces it occupies, and the excessive predominancy it imparts to the organs in which it is located.

The cases of this period like those of the first, do not present the same symptoms. These are modified by the temperament and constitutional peculiarities of the individual.

In this period vomiting, purging, cramps, and pain in the abdomen are the most prominent symptoms. Of these symptoms purging is more constant than the others. The following table exhibits the proportions of these symptoms, in twenty-one patients.

Vomiting in	-	-	-	-	-	-	-	-	-	13
Diarrhœa in	-	-	-	-	-	-	-	-	-	20
Cramps in	-	-	-	-	-	-	-	-	-	10
Pain in abdomen in	-	-	-	-	-	-	-	-	-	21
Thirst in	-	-	-	-	-	-	-	-	-	13
Pulse very feeble in	-	-	-	-	-	-	-	-	-	4
Pulse full and strong in	-	-	-	-	-	-	-	-	-	9

The matters ejected were in the commencement the food last taken, subsequently a thin, clear fluid, mixed with thick, viscid mucus, occasionally whitish flocculi, and sometimes coloured yellow, but more frequently of light grass or verdigris green from bile.

The dejections from the bowels were, in the greater number of cases, a thin whitish fluid, resembling whey, or thicker, having the appearance of oatmeal gruel; sometimes they had a brownish aspect like dirty water: or were tinged with bile.

The urine in this stage was generally diminished, but seldom suppressed.

The temperament gave a decided character to the symptoms. The following cases will illustrate the disease as modified by a highly nervous temperament.

CASE III. *Spasms; cramps; violent pain in abdomen.*

Miss J. A. aged twenty; very pallid; subject for many years to violent head-aches with very little intermission, for which she has been frequently depleted, and long kept on a regimen; menstruation regular; was seized August 5th, early in the morning, with excruciating spasms in the stomach and bowels. She had never before experienced a similar attack. Soon after violent cramps affected the whole of the voluntary muscles. Blood was taken from the arm without diminution of the symptoms; laudanum given in large doses; sinapisms to extremities and abdomen; and finally, spt. turpentine and laudanum administered as an enema. The cramps towards evening disappeared, but the pain of abdomen continued with cold surface and extremities.

August 6th.—Pain of abdomen continues with occasional spasms,

pulse feeble; skin cool; bowels freely opened; thin discharges attended with no pain; fifty leeches to the abdomen; calomel, gr. ii.; opii, gr. i. every four hours.—Evening. Pain much relieved; pulse more developed.

7th. Entirely free of pain; no spasms; some soreness of abdomen on pressure. Diet.

8th. Convalescent; sitting up.

CASE IV. *Pain in abdomen; previous looseness of bowels; violent spasms of stomach and bowels; diminution of temperature; cramps; no vomiting or purging.*

Mr. C. E. aged forty years; tall; thin; pallid complexion; light hair and eyes; nervoso-lymphatic temperament; feeble constitution. From the commencement of the epidemic he had been disturbed in his bowels frequently, and his digestive powers impaired. He had taken advice for these symptoms repeatedly at my office, and been particularly observant of his regimen.

August 20th.—I was sent for to visit him at his residence. The uneasiness of his abdomen and disorder of his bowels had been increasing for some days. The day previous, 19th, the looseness had ceased, and the pain in abdomen had augmented. It continued to increase, and this morning had attained the severity of violent spasms. I did not see him until near 4 P. M. At this time there was constant pain in the bowels, accompanied with paroxysmal spasms of stomach and bowels frequently returning. The pulse was feeble and the surface cool. Hot fomentations were directed to the abdomen, and the following mixture prescribed. Spt. lavend. comp., spt. camph. āā. ℥iv.; acet. tinct. opii, liq. Hoff. anod. āā. ℥ii.; a tea-spoonful every half hour. 7 P. M. no relief; spasms augmenting; twelve cups directed to the abdomen, and a purgative injection to open the bowels. 10 P. M. symptoms more aggravated; pulse very small and feeble; temperature of surface very much diminished, especially of the extremities; pain of abdomen excessive, and spasms violent. Calomel, gr. iv.; opium, gr. ii. were administered. No abatement ensuing in the severity of the spasms; sixty drops of laudanum were given. The surface was rubbed with Cayenne pepper and alcohol; sinapisms applied to the abdomen and extremities. 11½, same state. I now directed water nearly boiling to be taken as rapidly as it could be swallowed. Three tumblers of it were sipped with a tea-spoon in about ten minutes. The spasms of the stomach immediately ceased and did not again return. The pulse became developed; the skin warm, and a perspiration broke out. An injection consisting of fifty drops of spt. terebinth, and sixty of lau-

danum, with a tea-spoonful of mucilage was thrown into the rectum, and I left my patient at 12½ o'clock relieved of the urgent symptoms.

August 21st.—Had slept during latter part of night; no return of spasms; abdomen feels sore; skin warm; pulse full and round; uneasy feelings in the bowels. Directed chicken water, and castor oil, ʒij.—

• *Evening.* Bowels open.

22d.—Pain still felt in bowels; motion causes feeling of soreness in abdomen; looseness of bowels returning; discharges copious; calomel, gr. i.; opii, gr. i.; twice per diem.

23d.—Uneasy feeling in bowels; tendency to diarrhœa; diet, rice; occasional opiates.

Convalescence was slow, and it was not until the 28th, the symptoms of diarrhœa and uneasiness of the bowels had disappeared.

Remarks.—In the above cases the nervous temperament of the individuals bestowing a strong predisposition to disturbance of the nervous functions, gave origin to the intense spasms and neuralgic pains, which characterized them, and became the master symptoms of the disease. These cases are merely exemplars of a number perfectly similar, that fell under my observation about the same period. That they were genuine choleric cases, that is, excited by the epidemic choleric principle, I entertain no question. We have the fullest evidence that this principle develops an active and extended irritation of the alimentary nervous tissue, and constant experience proves to us that in the highly nervous temperament, an irritation of that tissue will so affect the nervous organs, as to occasion cramps, spasms, convulsions, apoplexy and other diseases of the nervous apparatus. The following case exhibits a singular form of spasmodic disease, originating in this manner and illustrates the principle.

Tenth July last, at 8 o'clock in the evening, I was requested to render assistance to an Irishman employed as an ostler, at a livery stable. I found him with three persons engaged in holding and rubbing his left arm, while he was writhing with pain, which extorted from him violent vociferations. The muscles of the arm from the shoulder down were intensely cramped, but no others of the body were affected. The cramps returned at intervals of four or five minutes. The pulse was full, strong, and bounding; the face flushed; the skin warm and covered with perspiration; great thirst. When asked if he suffered any other pain than that from the cramps in the arm, he answered negatively. Yet the slightest pressure on the epigastrium elicited loud exclamations. His statement was, that he had been previously in good health, and that he had dined heartily on fried bacon. After dinner while occupied in washing a carriage, he

felt cramps in his wrists; these continued to increase until they acquired the force in which they then existed. Thirty ounces of blood were taken from the arm, cold sweetened water given to drink, and a purgative injection administered. The cramps ceased soon after the abstraction of the blood, and did not return. In this instance indigestible and stimulant food eaten to excess, had awakened gastric irritation, which radiated into the nervous apparatus, had excited those centres or spinal ganglia pathologically which transmit nervous stimulation to the muscles of the left arm. Hence the spasm of those muscles.

In the year 1826, I published in the North American Medical and Surgical Journal, several cases illustrating this fact of gastric irritation exciting nervous phenomena in those endowed with the nervous temperament. These cases at the time were regarded as conclusive on this point by several of the European Journals, into which they were transferred. I have since then witnessed many cases of the same character. As this is a point of no inconsiderable importance, and illustrates an important pathological fact, the following additional case may not be considered as irrelative or inappropriate.

May 15th, 1831.—Was requested by Dr. S. of this city to see his infant, aged four months. It had been for the last forty-eight hours affected with a catarrhal fever. It had been purged, and was taking vin. antimon. in small doses every hour. This morning was seized with spasms; the arms were fixed and muscles rigid; the head and body drawn backwards; no tendency to coma or stupor; the eyes kept in a fixed stare; incessant, short, loud screams were uttered, totally different from crying, and indicative of severe agony; countenance expressive of suffering; the head was cool; tongue red, covered with white fur; belly hot. Regarding the case as one of gastric irritation, attended with the agony of thirst, which these little ones are incapable of making known, and the irritation radiated into the nervous system, I called for some sweetened cold water. It was swallowed most greedily. The screaming ceased in ten minutes; the stiffened limbs were relaxed; the little sufferer began to take notice, and in a short time fell asleep. The next day it was perfectly well.

In this case the spasms and nervous affections unequivocally were produced by the gastric irritation, and yielded instantly to the calming action of the only real direct sedative we possess—cold—applied immediately to the seat of primitive irritation.

I could cite many similar cases, occurring especially in children, of intense spasms, almost immediately relieved by cold drinks: annually I witness some six, eight, or ten cases of the kind.

In the *sanguine temperament* the nervous symptoms are either feeble, or do not exist; while inflammatory symptoms are those that

take the precedence. The following cases exhibit the characters of the second period, or confirmed irritation in the sanguine temperament.

CASE V. *August 17th.*—While making a visit to one of the family of Mr. F. late in the evening, I was informed the servant girl had just been attacked, and was requested to see her. Nearly the whole of this family had been affected in various degrees with the disease, and Mr. F.'s mother, an aged lady, had died with it a few days previous.

The patient was a girl aged twenty; strong and active; sanguine temperament. She had been labouring under diarrhœa the previous day and during this day, but had not discontinued her employments, and had exposed herself to cold by working in bare feet.

The diarrhœa had suddenly been checked; violent pains in the bowels had ensued; she was bent double, and could not hold herself erect. The pulse was full; skin warm; feet cold; no cramps; v. s. to \bar{z} xxiv. was practised; a hot fomentation applied to the abdomen, and hot stimulant foot-baths directed; to be followed by an enema of flaxseed, mucilage, and laudanum. The relief was prompt.

18th.—No return of violent pain in bowels; abdomen sore; headache; bowels not opened.—Evening. Augmentation of symptoms; pain in bowels augmented; face flushed; sickness of stomach; headache; the abdomen was covered with cups, and an emollient injection thrown into the bowels.

19th.—Much improved; bowels free; slight febrile movement and head-ache. Rice water for diet.

20th.—No return of symptoms.

CASE VI. *Cholera, second period; confirmed irritation, and tendency to collapse.*—*Diarrhœa; pain in bowels; pulse feeble; temperature relieved; cold and clammy extremities; reaction; sanguine temperament; plethoric habit.*

August 11th.—Was called to visit Mr. T. H. at 8 P. M. Patient aged sixty-two; stout; robust; powerful frame; constitution excellent; light eyes and hair; florid complexion; temperament sanguine; this is the first illness for many years.

For several days had been complaining of loss of appetite, uncomfortable feelings in the bowels, with slight looseness. Had no desire to eat at dinner to-day, but from habit sat down to table and eat roast beef. Soon after dinner was attacked with diarrhœa; dejections very copious and exhausting. To use his own expression, he felt as though his whole body was coming through his bowels. At the time of my visit he was suffering severe pain in the bowels; the abdomen painful

on pressure; the temperature reduced below the natural standard; the feet very cold and cramped; hands and wrists cold, and covered with moisture; the pulse feeble, and quite small. The face pallid, haggard and shrunken; the voice husky as from a cold; urine suppressed; thirst.

An enema of tinct. thebaic, gtt. lx. in starch was directed. Dry warmth to the lower extremities; eighty leeches to the abdomen, and tinct. thebaic, gtt. x., spt. camphor, gtt. v. every hour; after the leeching warm fomentations to the abdomen.

11 P. M. the pain of the abdomen and bowels had subsided immediately after the leeching; reïction commencing, the pulse fuller and stronger, the skin has a more comfortable feeling.

12th.—Reïction complete; about 2 A. M. the pain had entirely ceased in the bowels; abdomen feels sore and tender; diarrhœa checked; skin warm; face has recovered its natural expression, colour and fulness; pulse is large and full; thirst is very great; rice water and carbonated water for drink.

5 P. M. continues in same favourable state; febrile movement moderate; has passed no urine; thirst unabated; prefers carbonated water for drink.

13th.—Return of pain in the bowels; no urine passed; fever very slight.—R. Mass. hydrarg. gr. viii.; opii. ipecac. āā. gr. ii. divid. in pill. iv.; one every three or four hours. Flaxseed tea and spt. nitri dulc. for drink.

5 P. M. Pain relieved; no urine; no stool to-day.

14th.—Passed a good night; urinates freely this morning; thirst abated; skin natural; pulse soft and slower.

In this case, as in some others I met with, costiveness ensued, and it required considerable attention to diet in order to restore the regular operations of the bowels. They were brought on in this instance by drinking for some time Saratoga water.

Remarks.—In this case there was a total absence nearly of all-nervous phenomena. The evidences of simple sanguine irritation of the gastro-intestinal mucous tissue, mounting rapidly into inflammation, were the only decidedly appreciable signs existing. The sudden exhaustion that had ensued so rapidly from the time of the attack, in an individual enjoying what might be termed rude health, and possessed of great vigour of constitution, deterred me from the employment of general depletion. When the danger of collapse is imminent, as in this case, general depletion is a doubtful, and often a hazardous remedy. Should it have the effect of diminishing the irritation of the gastro-intestinal mucous tissue, without impairing to a great degree the forces of the other organs, diffusion, revulsion or reïction may ensue; but

who can pronounce positively that such will be its operation? It is quite as probable that the healthy organs and tissues will be enfeebled, and their powers of resistance destroyed by the diminution of their organic circulation and forces, for general depletion influences all the organs in the same manner, as that it will reduce the excessive and morbid irritation of the affected tissues. In such case the ascendancy of the diseased organs will be assured by the operation of general depletion, and the collapse hastened. I have witnessed several instances of this result. No danger of this kind is incurred by the employment of local depletion. Those who object to the inefficiency of a *few leeches to the epigastrium* and abdomen, only expose their ignorance of the *modus agendi* of both general and local depletion. The two are as distinct in their effect, as it is possible for any two remedies to be.

CASE VII. *Cholera; premonitory signs; second period; confirmed irritation.—Vomiting and purging; violent abdominal pain; præcordial anxiety; pulse full; no tendency to collapse. Temperament sanguine, nervous; the first predominant; plethoric habit.*

August 7th.—Miss J. aged nineteen; a full form; good constitution; complexion florid; hair auburn; eyes light; has enjoyed general good health with the exception of pain in the back at intervals for the last two years.

For the last day or two felt unwell; last night was attacked with diarrhœa, and this morning nausea and vomiting; slight febrile movement and head-ache; directed the effervescing draught with laudanum and diet; in the evening the symptoms had disappeared, and felt quite relieved.

8th.—The diarrhœa recurred again to-day, attended with pain in the bowels; continued to increase, and at 11 P. M. I was sent for to visit her. She was suffering from severe spasms of the bowels, returning in paroxysms every five or ten minutes; frequent dejections; discharges thin; nausea and retching, small quantity of clear fluid ejected at times; great distress and oppression at the præcordium; pulse full and frequent; face flushed; fulness of head; skin warm; v. s. to ζ xvi. was directed, but fainting took place when ζ xii. had been taken. The præcordial distress relieved; but the spasms and pain of bowels undiminished; sinapisms were applied to the extremities, and a large mint poultice to the abdomen. Enema of starch and laudanum, gtt. lxxx. which was repeated at 1 A. M. At 2 A. M. spasms ceased, and some relief obtained.

9th.—Pain in abdomen augmented; spasms renewed but with less violence than last night; pain more intense in lower region of abdomen; stomach quiet; thirst; diarrhœa; a number of thin watery dejections this morning; sixty leeches directed to the abdomen; absolute diet; rice water for drink.

3 P. M. Pain entirely relieved; pulse full and soft; skin warm; diarrhœa checked.

10th.—No pain; skin and pulse natural; bowels in proper condition.

Remarks.—In this case the inflammatory symptoms were the most prominent, derived from the temperament, constitution, youth, and plethoric habit of the patient. In individuals of this character local irritations almost invariably produce radiation or sympathetic irritation; diffused or radiated into other organs than those primitively affected. From the sum of vital activity or organic force with which all the organs are endowed, each organ resists the diminution of its vital organic or nutritive humour, the tendency impressed on all by an active irritation in any one; each maintains its activity, and thus prevents the movement of concentration which constitutes the collapse. General depletion in this case exercised no influence over the abdominal irritation, which immediately yielded to leeching.

The foregoing cases exhibit the general characteristics of this period of the disease, and the peculiar features impressed by the temperaments of the individuals.

The general symptoms of the disease in the first and second periods, manifested in the different organs and functions, are as follows.

1. In the nervous system—*cerebral organs and functions.* Integrity of the intellectual faculties; occasional sudden attacks of vertigo or simple dizziness, in the proportion of five or eight in one hundred; head-ache in the same proportion.—*Organs and functions of sensibility.* Little or no appreciable disturbance, except what may be referred to the state of the surfaces connected with the senses, as taste and smell being impaired from the condition of the lingual and nasal mucous membrane. In 2 or 3 per cent. neuralgic pains were experienced.—*In the nervous organs of voluntary movements.* Clonic contractions of the muscles, cramps and spasms. The cramps affect in this period chiefly, if not almost exclusively, the muscles of the lower extremities, the feet and legs especially. Cramps sufficiently severe to be the subject of complaint on the part of the patient, occurred in 15 of 21 cases. General spasms in one only.—*In the ganglionic organs;* nothing appreciable, unless the spasms of the stomach and bowels are to be assigned to this apparatus, which is at least a probable induction or hypothesis; for as yet, positive evidence is

wanting to establish its influence over the involuntary muscles. Spasmodic pains, appearing to arise from spasms of the stomach or bowels, presented themselves in 18 out of 21 cases.

2. In the organs of the nutritive, reparative, or organic functions, the *respiratory organs* are not manifestly disturbed; the function of respiration is performed in nearly its natural mode. *The apparatus of the general circulation* is not uniformly in its manifestations the same. The action of the heart, and consequently the pulse is, in many, increased in frequency; in a few acquires force, and the vessels fullness. Of the last conditions, the proportion is 20 to 30 in 100. More constant is the opposite state or diminution in the force of the heart, with feebleness and smallness of the pulse. *The organic or capillary circulation* does not depart widely from its usual state. In a small number, those in whom excitement or diffusion of irritation takes place, about 5 or 8 in 100, it exhibits an augmentation of activity in the external surface, as shown by increased temperature; and in the brain, as is displayed by head-ache, flushing of the face, and injection of the eyes. In a considerable number in the first and seconds periods, it does not exhibit any marked deviation from the ordinary state, while in others it is evidently very irregular; the internal disturbances being violent, while the skin, lips, and tongue are pale, sunk below their natural temperature, the nails purplish or blue, and the features of the face shrunken.

The digestive apparatus are the organs the first to exhibit manifestations of the disease, in which the morbid phenomena are most constant, the most violent, uniform, and invariable. They are truly the "throne of the disease;" from them proceed the catenation of phenomena affecting the rest of the organism; they are the first cause of all the subsequent phenomena, which must be traced up for their explanation to the pathological state of the gastro-intestinal surface, and the influence which that will exert over the whole economy. In none of the patients that came under my observation, were absent the signs of a pathological disturbance of this surface. Thirst, vomiting, purging, internal sense of heat, or violent pain in the abdomen, often the whole conjoined, were present in every case. The table exhibiting the characters of these periods is conclusive on this point. Diarrhoea was a very constant and uniform symptom. In private practice, of fifty-five patients, it was absent in four only. Pain in the stomach or intestines was next in frequency; it was only absent in six; vomiting occurred in thirty-four, it did not exist in nineteen.

The secretory apparatus was in many partially disordered. The

urine was scant, and occasionally suppressed in this period, but not in a greater number of cases than 3 or 4 in 100. The perspiratory exhalation was not uniform in its characters, following the states of the cutaneous organic circulation. The biliary secretion appeared, from the character of the stomach and intestinal evacuations, to be generally deficient, though not invariably so.

The pathology of the first and second periods, or the correct appreciation of the symptoms, is to be ascertained alone by the aid of physiology. Anatomical pathology entirely fails us on this point. None perish in these periods; before a fatal result ensues from cholera, the disease advances into the third, fourth, or fifth periods, when changes of structure have ensued, complications have been added, and a new order of things has taken place, totally different from the condition of the first and second periods. On this account, it appears to me a preferable method to separate the two, and to form two divisions of the disease, which really exist in nature. It will lead to a clearer understanding of the disease, and enable us more distinctly to seize on the peculiar characters of each period, different from each other, and presenting specific phenomena, and nearly a specific character.

To the first and second periods of the disease, the term *cholerine* has been applied. It is the diminutive of cholera, and means a lighter form of the disease than the full-formed cholera. During the epidemic period, an immense number of these cases occur, and to decide upon the success claimed for any remedies or method of treatment, the distinction between cholerine and cholera should be kept in view, and the cases be referred to their appropriate head. The evidence of a correct treatment in cholerine will be the proportion of cases in any given number, that are arrested in this period, and do not pass into cholera.

The distinguishing symptoms of cholerine, or the first and second periods of epidemic cholera, as exhibited in the preceding history of the affection and analysis of its phenomena, are disturbances, or an anormal state of the digestive apparatus, especially of the stomach and intestinal canal. It is in the disordered functions of these organs, the disease is first announced; they remain in the same condition throughout the complaint; and their disturbance in some shape prevails in every case—is absent in none. They are the ruling organs in the disease. Now, whence proceeds this disorder of those functions; what is the condition of the organs the immediate or proximate cause of the symptoms? These symptoms and disordered function are—inappetence, nausea, eructations, vomiting, purging, thirst,

soreness, pain and fulness of abdomen, tenderness of the epigastrium, tormina, spasms of stomach and intestines, and sometimes tenesmus. Some of these symptoms, I repeat, are found in every case, and in many nearly the whole are present. Symptoms precisely the same as those we have enumerated as the most characteristic of cholera, and in all cases exhibited in greater or less number in the disease, are precisely such as result from irritating agents acting on the gastro-intestinal mucous surfaces. Small doses of an emeto-cathartic, not sufficient to produce its full effects, administered daily, will give rise precisely to the same train of symptoms. An active cathartic will often, in persons of irritable organs, cause symptoms perfectly similar to those of the second and third stages of cholera. The following cases are evidences of this fact.

April.—I was urgently desired to visit Miss —. She had been affected with slight dyspeptic symptoms for some time, and was frequently constipated. Her temperament nervous. She had taken early in the morning a common dose of calomel and jalap to relieve her bowels, which had not been evacuated for three days, but from which she felt no particular inconvenience. Soon after taking the medicine she had nausea, felt very sick, pains afterwards commenced in the bowels; she had spasms, tormina, vomiting, excessive purging, and cramps. I was sent for in haste, for she felt, as she expressed herself to me, as though she was dying. Her surface was cold and pulse scarcely perceptible. Warmth, sinapisms, fomentations to the abdomen, and anodynes, succeeded in relieving her.

Mr. B—, a gentleman extensively engaged in business, is of a nervous lymphatic temperament; health has been delicate, though it has never interfered with his attention to his occupations. Finding himself costive, he took strong infusion of senna; it operated freely, but left the abdomen very sore and tender. After the operation of the medicine he went to his office; the tormina of the bowels became excessive, attended with spasms and cramps. He was carried to a carriage, being unable to walk, and taken home, when I was sent for. I found his surface, especially the extremities, quite cold, face haggard and shrunk, pulse feeble and fluttering. Sinapisms to the abdomen, warmth to the extremities, with laudanum and *spt. camphor*, after two or three hours brought on reaction. The next day a small bleeding was required to diminish the febrile movement.

Many other cases I could cite, as having fallen under my observation, of a similar kind. They are conclusive as to the production of symptoms, unquestionably analogous to those of the first, second, and, in instances, third period of cholera, induced by agents whose

known mode of operation on the intestinal mucous membrane is that of active irritants. The same effects resulting from similar causes, and reasoning from the known to the unknown, we are authorized to infer, that the immediate or proximate cause productive of the symptoms of the first and second stages of cholera, or cholerine, as they have been termed, is an irritation of the gastro-intestinal mucous membrane. By this term irritation, I mean a complex vital phenomena, or rather combination of phenomena, inseparably united, constituting a circle of actions, and common to every tissue of the organism. It consists of vital reëction resulting from the impression of an exterior agent on an organized tissue endowed with vital activity, beyond the normal or physiological degree natural to that tissue; it is attended, as a necessary consequence, with increased quantity of vital fluid in the tissue, augmented irritability, generally augmented sensibility, and productive of disorder in the functions and mode of being of the tissue where it is developed. Such is the description of the phenomena, which, taken collectively, are intended to be designated by the term irritation.

That this condition is the state of the alimentary mucous tissue in cholerine, or the primary periods of malignant cholera, is not only clearly indicated by the actual phenomena of those periods, but is equally evident by the mode in which it is in most cases developed. In speaking of the causes of the disease, it has been shown, that in order to give efficiency to the predisposing cause, or the action of the specific epidemic principle, an exciting cause is required to call forth the phenomena of the disease, or give it being. Now, nearly the whole of the exciting causes are agents that act on, or influence immediately the alimentary mucous tissue, and are disturbing, exciting, or irritating agents. Besides, those individuals whose alimentary mucous tissue is already in a state of irritation, or of inflammation, are precisely the individuals in the community who appear to be selected out as the elected victims of the pestilence. They are the first to feel its influence, who suffer most severely under its visitation, who rarely escape its destructive energy. They owe this unenviable distinction to the irritations and inflammations already existing in the alimentary mucous tissue. This fact is a corroborating evidence that the pathology of the disease is that we have assigned to it—an irritative action developed in the alimentary mucous tissue. For, in this state, that tissue is already advanced in the line of the disease; the specific and exciting causes have less resistance to overcome than when acting on a healthy surface; and the disease consequently is more easily, rapidly, and fatally induced. Did the affection consist,

as is conjectured and asserted, in a state of diminished vital activity—of a lessened force of vital reaction, and consequently of diminished irritability and sensibility, the individuals of this description, instead of yielding so readily to the morbid influence of the epidemic predisposing and exciting causes, instead of meeting them in their morbid tendencies, should offer to them the greatest opposition. The established irritations and inflammations of their tissues would prove their safeguards—they should be the last, not the first, to suffer, and their diseases, as so directly opposed to that assumed as the pathology of cholera, should render their cases the lightest and most easily controlled. The facts are the reverse, and are conclusive that this view is entirely artificial, is not fairly deducible from existing phenomena, and tends to the establishment of an incorrect practice.

The *indications of cure* founded on the foregoing principles, are the following:—

1st. To adapt the aliment as to quality and quantity to the state of the digestive forces; or to suspend entirely, or greatly to diminish the exercise of the digestive functions.

2d. To allay the sanguine and nervous irritation existing in the whole alimentary canal.

3d. To bring on diffusive excitement, or the irradiation of the organic circulation, counteracting and preventing its concentration towards the alimentary mucous tissue.

4th. To accomplish a more healthy state of action, of the secretions, and regular functional performance of the bowels.

The practical, remedial and therapeutic means, for the accomplishing of the preceding indications, are various and diversified. They are to be employed and adapted according to the particular case characterized by its distinguishing symptoms.

For the attainment of the first indication, the diet of the patient should be made to consist, in the first period of the disease, of boiled black tea, with cream, and stale wheat bread, or soda biscuits, for breakfast and supper; while rice, grits, or homminy, should constitute chiefly the dinner. Weak chicken or mutton broth, or water, is frequently most soothing and grateful to the stomach. Toast and water, barley or rice water, form the most appropriate drink. In the second period, or confirmed irritation, the diet must be absolute, or consist solely of chicken water, rice or barley ptisan.

The second and third indications are accomplished by nearly similar means; for the attainment of the one almost necessarily induces the other. These means are, 1st, immersing the feet in a warm stimulant foot-bath for fifteen or twenty minutes: the bath may be sina-

pised, or made of a weak alkaline ley or solution of salt. The patient is then to be placed in bed well covered, with warm applications to the feet, as bottles of warm water, warm bricks, irons, or bags of heated oats, &c. If there be much uneasiness in the abdomen, warm epithems are to be applied, and renewed as they become cool. Hops steeped in warm water or vinegar and water, and subsequently expressed nearly dry, I found very convenient for this purpose. Dry heat is to be preferred in some instances, and then a stomach warmer, or heated oats, hops, or salt contained in bags, may be resorted to for this object. In the lighter forms of the first period, or the preliminary and premonitory stages of the disease, advancing into the confirmed affection, the above treatment very generally suffices to dispel the symptoms, and arrest its progress in the course of one or two days. The observance of a proper regimen is all that is, then, requisite to protect against a relapse. This I found was the greatest difficulty in the management of patients. The restoration to a state of comfortable feeling was considered as a license for indulgence, but as the specific predisposing cause is in constant operation during the epidemic period, the necessity for attention to the prophylactic or preventive regimen still continues. It is even more imperative, as the attack already suffered, leaves the alimentary surface more irritable, more sensitive to impressions, and of consequence, more disposed to perturbing actions from light exciting causes.

2d. The administration of diffusive excitants in small doses, in order to ensure their introduction into the economy, and the general or diffused excitement through the organism. One of the most frequently employed of these, was the alcoholic solution of camphor. The partizans of Hahnemann and the homœopathic doctrine, extol camphor as a specific; but, from my own experience of its operation, I am satisfied that its action is diffused excitement. Taken in small doses, I have found a sentiment of warmth and glow to be developed on the surface, succeeded by a gentle, warm transpiration. *This is the precise reverse action of that to which a constant tendency exists in the first and second periods of the disease, and which is counteracted by the action of camphor. The Hahnemannists condemn its association with opium in any shape. My own observation does not confirm the correctness of this interdict. On the contrary, I found great advantage from the combination; and the cases in which the camphor proved most useful, were the light forms of the first period, with nervous pains of the abdomen. The dose in which it is administered, is from two to five drops, mixed with cold, sweetened water, and given every fifteen minutes, half hour or hour, according to the

urgency of the symptoms. The premonitory symptoms were, in immense numbers of cases, controlled by this remedy, and in the incipient stages, I have seen the most decided effects when the symptoms were principally of a nervous character. Other mild diffusible stimuli were however of equal utility, which is an evidence that in camphor there is nothing of a specific mode of action. Aqua ammoniæ in the dose of two drops, combined with five or ten drops of tinct. opii, and given in sweetened water, answered quite as well. The following prescription I frequently used, and found it to succeed equally with the camphor in the same class of cases:—R. Tinct. lavend. comp., tinct. camphoræ, āā. ℥iv.; liq. Hoff. anod., tinct. thebaic, āā. ℥ii. M. ft. mit. From ten to twenty drops of the above were administered at appropriate intervals.

In the cases in which the nervous symptoms were less decided, I generally directed the following prescription:—R. Massæ hydrargyri, gr. viii.; ext. opii aq., pulv. ipecac., āā. gr. ii. M. Divid. in pill. iv. One of these pills was given every two, four, or six hours, according to the symptoms.

When the inflammatory symptoms were not very acute, the symptoms frequently became mitigated by the preceding remedies. But whenever the vomiting and purging continued, accompanied with severe pain in the abdomen, then I had recourse to sanguine depletion, either general or local; or both, according to circumstances. General depletion was practised in the limited number of cases, in which the pulse was full and excited; but in the others, leeches or cups to the abdomen were found the more effectual and safer proceeding. It is surprising to witness how prompt often is the alleviation and abatement of the symptoms, following the application of from thirty to sixty leeches to the epigastrium and the iliac regions. In no instance did I find it necessary, in the patients I treated in the first stages, to repeat the local depletion. One application was sufficient to procure a favourable result. In several instances general depletion made but little impression, while a very prompt relief ensued upon local depletion.

General blood-letting is but partially applicable to the cases of cholera. It should be restricted to those only where the constitution is vigorous, and the patient has not been enfeebled by age, previous diseases, or dissipated living; and where the forces of the general circulation do not exhibit a manifest tendency to failure. In those cases in which it proves an available and salutary remedy, its operation is the reduction of the internal irritations, and the inviting to a revulsive movement, cooperating in this mode with, and facilitating the

diffusive or centrifugal action of the means put into operation for this object. This important movement, the *great recuperative action* of the organism in the *natural cure* of diseases, is based upon the vital forces of each organ, the susceptibility and capacity of each organ to assume and maintain vital reaction. Now, this state depends on the activity of the organic circulation in each organ, and its supplies of the vital sanguine fluid, the great energizer of vital reaction. If, therefore, this be abstracted below the sum necessary to maintain the vital reaction of each organ in the degree essential to its functions, a state of asthenia, sedation, or exhaustion, is the necessary consequence, and diffusion of irritation, irradiation, reaction, and a centrifugal movement, tending to the equalization of the organic and general circulations and the forces of life, become nearly or quite impossible. Whenever the signs of concentration are rapidly approaching, or the state of collapse, so named, is imminent, general depletion is then a most equivocal, nay, a hazardous remedy. Should it fail to remove or greatly to lessen the centrifugal force of the internal irritation, and produce a revulsive operation, its effects must be most disastrous. Its direct action being the abstraction of blood from the general circulation, the force of this, the energy of the heart's contractions, the supplies of sanguine vital fluid sent into the organs for the sustentation of their vital reaction, all are diminished, and of necessity the whole organism is prostrated. The sedation resulting from general depletion, cannot, from its mode of action, be directed so as to influence those organs exclusively whose vital reaction is in excess. All are influenced alike, and the revulsion or diffusive excitation, which is merely favoured by general depletion, is dependent on other causes, which we neither can absolutely command, nor whose presence even can we know by any positive signs. To resort to this remedy, therefore, when the failure of the forces of the general circulation evidences the exhaustion already induced in the sum of the sanguine vital fluid by the concentrative energies of the internal irritations, is to throw ourselves on the chapter of accidents, with this serious disadvantage, that the loss of our hazard is irretrievable ruin, must almost inevitably prove fatal.

Local or organic depletion offers none of the objections or difficulties attendant on general depletion. Its mode of action is totally distinct, and it is applicable to numerous cases where general depletion is entirely inadmissible. In local depletion the blood is not abstracted from the general circulation directly, and its influence is not that of a direct debilitating remedy immediately producing an exhausting, debilitating action on the whole organism. Its operation is restricted

to the organic, or as it is termed sometimes, capillary circulation, and is attended with a local irritation or excitation, resulting from the means by which it is accomplished. The common universal result of local irritation or excitation is thus produced—an afflux towards the part irritated or excited—but the escape of the blood, preventing the formation of a congestion, which arrests this movement when a simple rubefacient is employed, and limits its influence, renders it continuous when caused by local depletion, extends it into a wide, expansive area, and often causes a decided and marked affluxive movement through the whole organic circulation. By the establishment of this movement, a direction is given to the organic circulation towards the point where the local depletion is made and the blood is escaping; towards this point does the sanguine fluid tend, and diminishes consequently in those the most opposite, and hence arises the peculiar and admirable effects to be obtained by the employment of this means—effects more frequently applicable in the treatment of disease, and of more decided and beneficial agency than most other therapeutic remedies at our command. It is a remarkable fact, that the debilitating or sedative action of local or organic depletion is at the points the antipodes of that where the depletion is made. The application of the means used for this purpose is not a matter of indifference. The position selected for the application in most instances, there are exceptions under certain circumstances, should be directly opposed to that intended to be influenced. Were this the place, and the digression would not be too long, I could cite numerous facts in support of the axiom. A very little experience with these means is sufficient to give the demonstration even to casual observers of its accuracy. Local depletion from the thorax, it is known to all, will not give relief in the inflammations of the abdominal viscera, nor when made from the abdomen, prove beneficial in the inflammation of the thoracic organs. Did local or organic depletion accomplish its effects merely by the abstraction of blood, it would be indifferent whence the blood was taken, so that the amount was the same; but the contrary is too well known to be contested.

In what manner local depletion causes this affluxive movement in the organic circulation, and expends its influence on tissues different and remote from that whence it is made, can no more be explained than can the same operations be explained as resulting, though in a lesser degree, from the action of rubefacients, vesicatories, cauteries, and other revellent measures. These operations depend on the forces and laws of the organic, vital and molecular circulation or movement of the sanguine fluid in the tissues. The mechanical or general cir-

culatation—the movement of the sanguine fluid in masses or columns to and from the respiratory surfaces, and to and from the nutritive surfaces or organic tissues—accomplished by physical forces and on physical laws, has been well investigated, and is almost, though not completely, elucidated. But as respects the organic textular circulation, our information is very limited. We know nothing of the forces producing and maintaining, and but partially the laws that govern it. It is dependent on the same forces, and governed by the same laws, that are the causes and regulators of vital reëction, or the phenomena of vitality. As the mode of action of these forces is unknown, inscrutable, it is not possible to assign the mode in which this great vital phenomenon, so deeply concerned in the pathological condition, and of so great moment in therapeutic operations, is accomplished. We must therefore be contented with the facts revealed to us by observation, and attempt the establishment of those general principles or laws—the coördination of the facts in the order of their dependance, which are obtained by a well-regulated experience.

In addition to the foregoing means, I prescribed, when the stomach was much distressed with nausea and vomiting, the effervescing draught of Riverius, to which was added the black drop. Frequently I made the solution of the bi-carbon. potassæ in the aqua camphorata, according to the following prescription:—℞. Bi-carbon. potassæ, ℥iv.; acetat. opii, gtt. xv.; aquæ camphorata, ℥iv. M. ft. solut. Half an ounce, mixed with an equal quantity of lemon juice, was given in the act of effervescing. The dose was repeated every hour or half hour. This draught was often very grateful.

To allay the thirst, and at the same time to abate the gastric irritation, iced water in small quantities, or iced gum water, very slightly acidulated with lemon juice, and sweetened, was allowed for drink. The iced carbonated or Seltzer water was also a general beverage, and highly grateful to the stomach. In many instances ice itself was given in very small pieces. One of the patients I attended early in the epidemic attacked with the disease, was so delighted with the relief he experienced from iced drinks and from ice, that when I subsequently saw him, he would cry out “give them ice.”

By allaying the intense sensation of thirst, which often amounts to agony, one of the sources of nervous disturbance and irritation is cut off. Cold also acts as a direct sedative on the gastric mucous membrane, and the decided relief obtained by its employment, while it establishes the propriety of the treatment, proves clearly the highly irritated state of that organ, and the kind of agency resulting from cold drinks. The diminution of the irritation of the gastro-intestinal

surfaces, by weakening the centripetal action, is the most efficient step towards establishing a diffusive movement, in promoting irradiation or reëction, and rendering more efficacious the operation of the external revellents, the cutaneous reëction caused by sinapisms, frictions, heat, leeches and cupping, or the force producing a centrifugal movement.

4. The last indication in the treatment of the first and second periods, or of cholérine, in the cases in which it arises, and in my practice they were very few, is attained by the administration of mild laxatives or eccoproctic remedies. The treatment already indicated in the cases under my charge, was generally adequate to the entire protection of the individual from the invasion of confirmed cholera, and to the perfect restoration to a healthy condition of the alimentary canal. In two of fifty-five patients, a costive disposition ensued, which continued for several weeks; but finally disappeared by the combined employment of appropriate regimen and laxatives. In one, an alkaline infusion of rhubarb was employed; in the other Saratoga water. In two, more uncomfortable feelings, and occasional tormina, continued to recur at intervals. This was removed in one by fifteen grains of rhubarb; in the other by small doses of calomel and opium, with castor oil in the dose of one drachm. These were the only cases in which I found it necessary to prescribe in order to bring the bowels into a natural condition after the cholérine symptoms had been removed. They were the only instances also in which I employed any purgative or evacuant medicines.

This class of remedies has been very strongly advocated by many highly respectable authorities, and even those of an active and drastic character warmly recommended. My conviction, the result of the pathological views I adopted of the disease from a physiological translation of its symptoms, was decidedly opposed to their administration. The *modus operandi* of these remedies, and that of the most numerous exciting causes of the disease, are perfectly analogous; the symptoms produced by each are nearly the same, the surface or organ primarily affected by both identical—they are then acting in the line of the predisposing cause, and must in numerous instances, it is not necessary for the rule that it should be universal, become its exciting cause, and hurry on its progress through the first stadia into the period of collapse. Several instances of the kind came immediately under my notice. In one of the earliest cases that occurred in this city, a dose of fifteen grains of calomel was taken at bed-time, on account of a sense of uneasiness in the bowels, collapse came on under its operation before morning, in which the patient succumbed.

July 30th, Dr. LOUGHRAN requested me early in the morning to visit with him a patient, the first he had seen with cholera, to whom he had been called in the latter part of the night. This man had taken an ounce of salts in the evening, the purging was excessive, he sunk immediately into collapse, and died between eight and nine in the morning.

A stout white man, a labourer, called at the apothecary store of Henry Zollickoffer, in the height of the epidemic, and bought a dose of calomel and jalap. He observed, that being costive, he intended to take it. A caution was given to him, and a request urged on him by Mr. Zollickoffer to diet himself, and not to take the medicine. This he refused, remarking that his bowels were hard to be moved, and required always a strong dose. This man was seized with cholera under the operation of the medicine, and was a corpse at twelve the next morning.

Other instances of the same kind came to my knowledge, and they at least deserve a serious consideration. Dr. THOMAS SPENCER, President of the Medical Society of the State of New York, in a compendious but very judicious tract, "Practical Observations on Epidemic Diarrhœa, &c." confirms my own observation and testimony as to the injurious tendency of active cathartics in the early stages of the disease. The following are his remarks on this subject. "In condemning the use of cathartics in this disease no favourite theory is to be regarded. *I have in several instances witnessed their fatal effects under my own prescription and observation.*"

For some time anterior to the appearance of the epidemic I had observed a strong disposition to intestinal affections, and an irritable condition of the bowels, that rendered them intolerant of the operation of purgatives. In June a gentleman whose family I attend, sent for me in the evening to arrest a hypercatharsis, induced by half an ounce of castor oil, which he had taken in the morning to obviate an uncomfortable feeling in the bowels. In the latter end of May I had a severe case of cholera followed by a gastritis that continued several weeks, brought on by an indigested meal and a purgative. During the prevalence of the epidemic it was an observation of many practitioners, that in the treatment of other diseases than cholera, it was necessary to observe great caution in the administration of purgatives, as they operated with a violence that was unusual, and by no means desirable. Since the cessation of the epidemic the same fact continues to be a subject of observation. Within a short period my valued friend, Professor CHAPMAN, has mentioned to me, that he was near losing a young lady from the excessive action of a single Seidlitz pow-

der, followed by an enteritic fever; and that in the same week, he had been called to arrest hypercatharsis in another patient from the same dose.

The propriety of particular remedies, or a specified plan of treatment, can only be established by comparative results and diversified observation. In the cases of the first stages of cholera that were submitted to my treatment, no purgatives were employed, and the whole recovered very speedily; not one passed into the fourth period, or that of collapse. In my exclusive private practice but one patient reached that stage, and it was formed before I arrived.

It should, however, here be remarked, in order to possess an entire view of the subject, and to arrive at just conclusions, that the patients of private practice were all persons of perfectly temperate habits, of easy circumstances, and regular lives, with three exceptions, and those are the subjects, the most favourable for treatment, in whom remedies procure their desired effects, and the disease is most certainly arrested in its course.

Emetics I did not employ in the periods of the disease under consideration. Having found the method I have detailed successful in its results, I did not feel the necessity of resorting to any other. As a centrifugal movement can generally be obtained by a careful exhibition of emetics properly managed, I can readily believe that an emetic operation procured by ipecacuanha, moderated by a mild opiate, or by a sudorific emetic, as the eupatorium, might be advantageously employed. In my hospital practice, the combination of ipecacuanha, opium, and mass. hydrarg., in two instances acted as an emetic. In both the stomach was loaded with indigestible food, and the emetic action was decidedly beneficial. The patients soon entered into convalescence.

The following cases are examples of the first periods of cholera, and will illustrate the treatment.

CASE VIII. *Cholera of first period; irritation; purging white stools; vomiting; pain of abdomen; cold surface; cramps of the feet.*

Madam H—, aged forty-five years, nervous temperament, has been since last fall affected with disorder of the alimentary functions, alternate costiveness and diarrhœa. July 10th, feeling uneasiness in her bowels, and disordered digestion, she took ℥i. of magnesia in the evening. Diarrhœa, with spasms and pains of the abdomen, becoming excessive, the next day she sent for me.

11th. Frequent purging; stools which were formerly dark and very

offensive, are now white and without odour; pain in abdomen very severe; nausea, and occasionally slight vomiting; pulse small; temperature of skin below natural standard. Directed dry heat to lower extremities; sinapism to be laid over the whole abdomen, and the following pills:—*R.* Mass. hydrarg., gr. iv.; ext. opii, pulv. ipecac. āā. gr. ii. *M. divid. in pill. iv.* A pill to be taken every four hours. In addition, an enema of tinct. thebaic, gtt. xxx. in mucilage was ordered. Chicken water very thin for drink.

12th. Vomited this morning—slight tinge of blood; diarrhœa had been arrested in the night; slight head-ache; constant nausea and thirst; cramps in the feet; surface cold. Iced carbonated water for drink.

Evening. Return of pain in abdomen, and diarrhœa. Repeat the pills; sinapism to abdomen, and injection of laudanum.

13th. Diarrhœa arrested early in the night; slept well; temperature of the skin natural; has no nausea.

A sense of chilliness continued for several days to such an extent that the patient had a fire in her room, and slept under several blankets.

CASE IX. Cholera, first period, or incipient irritation; diarrhœa; vomiting; pain in abdomen.

Jane Jackson, a coloured woman, aged twenty-four years, good constitution, was employed in the hospital as a nurse. She had undergone great fatigue in attending on the patients, rubbing them, and had been able to obtain for several days and nights but little sleep.

August 12th.—Was attacked with diarrhœa and vomiting, accompanied with pain in abdomen, augmented by pressure. Blood was drawn from the abdomen by cups, and sinapisms applied to the extremities and abdomen. She was kept warm in bed, and given diluting drinks. The symptoms immediately subsided, and next day she returned to her duties.

CASE X. Cholera, first period—incipient irritation; vomiting; purging; pain in abdomen.

August 1st.—Constance Graffain, aged sixty-nine years, a nurse in the hospital, was attacked in the night with violent purging; her bowels she represented as incessantly opened for a few hours; vomiting occurred but slightly; she complained of pain in the abdomen.

The attack had been induced by excessive fatigue and loss of rest.

In constitution the patient was feeble, and zeal and ardour in the performance of her duty led her to exertions too great for her strength.

At the visit of the morning I found her complaining of nausea; the tongue furred; the epigastrium very sensitive; abdomen painful; occasional vomiting; temperature of surface diminished, and pulse feeble. Fifty leeches were applied to the epigastrium, and the camphorated effervescing draught administered. The symptoms immediately abated. The next day she was convalescent. From her age she did not immediately recover her strength, but on the 4th resumed her duties.

The two last cases are examples of the light form the disease presents in thousands of cases in its commencing period, and when it is in almost every instance perfectly curable if timely application be made and an appropriate course be pursued. A vast number of similar cases could be adduced in illustration of the character of the disease in this period and its perfect tractableness.

CASE XI. *Cholera, second period; premonitory symptoms, purging; vomiting; cramps.*

July 13th.—E. D., lymphatic-nervous temperament; pale complexion; large frame; enjoys excellent health; habits unexceptionable in every respect; he has had the bowels and stomach disordered for several days past; eat notwithstanding beef and beans at dinner; during the evening was very chilly; went to bed, and awoke after twelve o'clock, with purging, vomiting, and pain in the abdomen. I was immediately sent for. I found him vomiting violently; a clear fluid with some flocculi discharged from his stomach; large dejections from his bowels; complains exceedingly of severe pain in his abdomen; muscles of legs and thighs strongly cramped; thirst excessive; pulse small; surface cold; features considerably shrunken, so as to change the expression of the countenance; voice enfeebled as from a cold.

A sinapism was applied to the abdomen, and on each leg; dry heat to the extremities. The effervescing draught, with the addition of sulph. morphæ, gr. ii. to ℥vi. of the solution, and kept cool with ice, was given every twenty minutes. Carbonated water also iced was given every few minutes in table-spoonful doses.

At 4 A. M. the vomiting and purging were checked; the pulse became stronger and fuller, and the skin less cool. At 5 A. M. the cramps ceased.

14th, 9 A. M.—Very much exhausted; strength greatly reduced;

looks haggard; skin has not recovered its temperature; thirst most distressing. • Small pieces of ice held in the mouth, and iced carbonated water continued—both most grateful to the patient.

11 o'clock. Feelings much more comfortable; skin nearly of natural temperature; thin chicken water.

Evening. Symptoms entirely relieved.

CASE XII. *Cholera, second period; diarrhæa; vomiting; serous discharges; cramps; pain in abdomen.*

July 24th.—Called to visit H. G. aged ten years; sanguine nervous temperament; florid complexion; light hair and eyes; had arrived a few days previously from New York. During yesterday was frequently purged, and the same throughout this day. The disease augmenting, and severe pain in the bowels coming on, L. was sent for at 10 o'clock, P. M. At this time a thin clear fluid was ejected from the stomach; the bowels were moved every half hour; the dejections watery, of a brown colour; the pain in abdomen was violent; pulse small, and surface cool. Warm fomentations were applied to the stomach, dry heat to the extremities, and the following prescription directed:—R. Calomel, gr. iv.; ext. opii, pulv. ipecac. āā. gr. ss. Divid. in pul. iv. A powder to be given every two or four hours, p. re nat. An enema of mucilage, $\frac{3}{4}$ iv.; tinct. thebaic, gtt. xx.; chicken water for drink.

25th. During the night had repeated attacks of cramps and abdominal spasms, arousing him from sleep; this morning vomited several times; profuse discharge in the middle of the day from the bowels in the bed, of a clear watery fluid; sinapism to abdomen; continue powders, and repeat enema. In the evening, symptoms abated; pulse has more volume; skin of good temperature; pain subsided.

26th. Slept well; convalescent.

CASE XIII. *Cholera, second period; purging; vomiting; cold surface; blue fingers; cramps.*

August 7th.—Mary M. F. aged thirteen years, had diarrhœa yesterday and during to-day. In a small court immediately in the rear of the dwelling, four fatal cases of cholera had occurred in the last three days.

I was sent for at nine in the evening. Vomiting had taken place; discharges thin and clear; frequent purging; pulse small and feeble; skin cold; extremities of fingers blue; cramps in the legs. I directed a foot bath of hot ley; a sinapism to the abdomen; warm applications to the feet, and to be covered up warm. The following preparation

of the effervescing draught to be administered every hour:—R. Bicarbon. potassæ, ℥ii.; acetat. opii, gtt. xii.; aqua menthæ pip., ℥i.; aqua camphoratæ, ℥iii. Ft. solut. Half an ounce, mixed with an equal quantity of fresh lemon juice, to be given every hour.

8th. Before daylight reaction came on; the skin became warm; the vomiting and purging ceased. Chicken water for diet.

Evening. Convalescent.

— CASE XIV. *Cholera, second period—confirmed irritation; purging; vomiting; spasms; cramps.*

July 30th.—Naomi Francis, a coloured woman, aged fifty-one years, robust constitution, a washerwoman, lived in a cellar in the court adjoining the hospital; habits temperate; food of a coarse, indigestible nature, and has eaten raw cucumbers and boiled corn. This morning was attacked with diarrhœa, and has had during the day numerous copious stools, thin, watery, and of brown colour, mixed with indigested corn. This afternoon vomiting was superadded to the diarrhœa. About 5 o'clock was seized with acute pain in the back, followed with intense pain in the bowels, cramps of the abdominal muscles and those of the legs. At 6 was brought into Hospital No. 5. Symptoms on admission were, in addition to the preceding, constant sickness of stomach; tongue furred, and red on edges; colder than natural; pulse 112, and small, extremities cold; elasticity of skin diminished, which was bedewed with cold sweat; countenance distressed. Dr. TURNPENNY, assistant physician on duty, saw her, and administered calomel, gr. vi., opii, gr. ss., but which was immediately rejected. Some alcohol was applied to the abdomen and inflamed so as to cause an instantaneous vesication. The effect of this was immediate in arresting the cramps and spasms of the abdominal muscles. The camphorated effervescing draught, with acetat. opii, gtt. iv. to each dose, was given every half hour, and the extremities surrounded by hot oats; cold flaxseed ptilisan for drink.

10 o'clock, P. M. Has vomited twice since admission; several discharges from bowels; cramps very slight; skin warmer; pulse fuller and slower; slight shrivelling of fingers; feels comfortable; pain of abdomen subsided. Same treatment continued.

31st. Vomited twice in the night; cramps occasionally troublesome; had two very copious liquid discharges of green colour; had some sleep; skin has warmth, and is moist; tongue furred and red on edges; pulse natural. Draught continued occasionally with iced gum water.

10 o'clock, P. M. Vomiting has ceased; one discharge from bowels, more natural. Treatment continued.

August 1st.—Convalescent. Chicken water.

2d. Discharged cured.

CASE XV. *Cholera, second period—confirmed irritation; purging; diarrhœa; abdominal pain and spasms; cramps.*

Robert D. Griffin, tailor, aged twenty-two years, admitted into hospital July 30th; is subject in the summer to slight bowel affections. On admission was affected with vomiting and frequent purging; abdominal muscles affected with spasms; pain in the abdomen, greatly increased by pressure; tongue slightly coated with white fur; great thirst; pulse feeble and very compressible; countenance anxious; surface cool.

The camphorated effervescing draught with acetat. opii was administered, and the abdomen covered with scarified cups; dry heat applied to the extremities by means of hot oats, and the same around the body; frictions constantly maintained over the whole surface; iced water for drink.

The vomiting and pain of abdomen abated very soon after the application of the cups; the cramps ceased, and the general symptoms improved rapidly.

31st. Symptoms entirely controlled; continues the draught occasionally; toast water for drink. But one stool during the day.

August 1st.—Convalescent. Chicken water for diet.

CASE XVI. *Cholera, second period; diarrhœa; cramps.*

William M. Downing, a black, intemperate habits, though constitution has not suffered; hod-carrier; admitted in hospital August 11th. He has been labouring under diarrhœa for the last twenty-four hours, which still continues, accompanied with severe cramps. To controul these a tourniquet was applied tight on the right thigh; pulse had force, but small; v. s. was performed to $\frac{3}{4}$ xii. The following pills directed:—R. Mass. hydrargyri, gr. ii.; pulv. ipecac., gr. ss.; pulv. opii, gr. $\frac{1}{4}$. M. ft. pill. A pill to be given every two hours.

After taking the first pill he vomited a large quantity of indigested cabbage. A second pill was given, and a basin was nearly filled by vomiting of the same substance. After vomiting he felt much relieved. Effervescing draught was directed.

In the evening symptoms had abated; pulse was developed; skin of good temperature. The cramps entirely ceased.

12th. No return of symptoms. Arrow root.

13th. Sense of constriction in the stomach, and epigastrium painful. Scarified cups applied, and $\frac{3}{4}$ vi. of blood taken.

14th. Convalescent.

The object of the preceding observations has been to investigate the character of the symptoms, to determine the nature, and illustrate the treatment of the first and second periods of the disease. These periods, when the disease does not pass beyond them, compose a distinct group or class of cases, exceedingly numerous during the prevalence of the epidemic, and which may be designated by the name cholérine, or choléroid, that has been already applied to them. The conclusion to which we have arrived, as the result of the analytic examination we have made, is, that in those stages, cholera is an irritation developed primarily in the mucous tissue of the alimentary canal. In order to understand the production of the succeeding stages, or cholera in its malignant aspect, it is necessary to fix the attention on the first periods, and to resolve in a positive manner the causes and nature of their phenomena. They are the initiatory phenomena, of which those that succeed are the sequences, and follow from them as effects. A neglect of this method has most probably embarrassed investigators in their researches. They have regarded cholera only in its last periods, when complications have been induced, and a new condition—accessory phenomena—have been added or engrafted on the primary, and which can only be understood by keeping them distinct. But still more fully to comprehend the subject, and to comprise the whole results in our view, it is requisite to direct attention, 1st, to the pathological phenomenon meant by the term irritation, and its effects; 2d, the anatomical nature of the structure affected; 3d, its physiological character, or the offices or functions it executes; 4th, its great extent; and lastly, its connexions. Unless the whole of these considerations are embraced in our examinations, we shall possess most incorrect ideas of the nature of the disease, and be little able to appreciate justly its phenomena. Inattention to these combined circumstances has rendered the disease a puzzle and a mystery. Irritation has been looked upon as a unit in its phenomena and effects, whereas both are exceedingly diversified. The consequences of irritation as located in the stomach, or colon, or rectum, have been compared to the symptoms of cholera, and being different, it has been at once concluded, that cholera was wholly unrelated to irritation. The error lies in the narrow, contracted, gimlet-hole view in which the subject has been regarded. All the phenomena which are comprehended in irritation, that inherently belong to it, are not brought forward and displayed in the connexion they maintain with each other, and hence the erroneous opinions enunciated from the imperfect ideas formed of this great and extensive pathological state.

It would be improper here to enlarge on all the points indicated as intimately connected with the present inquiry, but before proceeding to the investigation of the phenomena constituting the second group of cases—the third and fourth periods of the disease—it will be necessary for the comprehension of our views to make some general observations on each of those heads.

1st. Irritation has already been defined.* Its essential phenomenon is vital reaction in a degree beyond the point natural to the tissue in which it is excited. But as the sanguine fluid element of the organism is an essential element in all the organic actions, on which they immediately depend for their activity and energy, irritation or vital reaction in excess necessarily implies an augmented quantity of the sanguine fluid and increased activity of circulation, as its primary state, in every tissue where it is developed. The effects—the consequences of irritation, are of various character, and they are further modified by the tissue, the condition of the sanguine fluid, the temperament of the individual, the activity of the sympathies, and a variety of other circumstances. Independent of these modifications, the other primitive effects of irritation are, 1st, general affluxive movement in the organic circulation; 2d, augmented exhalation and secretion, somewhat modified in properties from the natural fluid secreted; 3d, raptus, or molimen, productive of hæmorrhages, congestion, or apoplexy; 4th, inflammation; 5th, when chronic, gradual alteration of structure. They are not necessarily connected, but any one may result from irritation without the concurrence of the other, except the first. Such are the primary effects of irritation, though each is susceptible of modifications from the causes above enumerated.

2d. The anatomical structure of the surface or membrane, the location of the irritation, it is necessary to signalize, in order to be able fully to appreciate the phenomena of the disease. The alimentary mucous membrane is one of the most important and complex parenchymas of the animal organism. There enters into its composition the common cellular tissue; the areolar or vascular tissue, in such abundance, that when the blood-vessels or lymphatics are injected, this tissue appears to compose nearly the whole of the membrane; while nervous tissue, in connexion principally with the ganglionic apparatus of the nervous system, is scarcely less in quantity; and with these the muscular tissue is closely associated in the formation of the muscular layers of the alimentary tube. But in addition to these, the primary elements of the animal structure, the glandular parenchyma, is extensively combined with them. So numerous are the se-

cretory cryptæ and follicles imbedded in this structure, the disseminated glands, (the glands of Brunner,) and those aggregated together, (the glands of Peyer,) it can scarcely be regarded as exaggeration to assert, that the alimentary canal is an extended, hollow, or tubular gland. By positive calculation these glands in the intestinal tube have been estimated to amount to forty thousand, an estimate we are convinced below, rather than above the actual number. Without this anatomical view of the true character of the structure primarily and principally affected in cholera, it is hardly possible to form correct ideas of the phenomena and results of irritation when called into existence in it, or the mode in which irritation may be productive of the phenomena of cholera.

3d. The physiological character of the alimentary mucous membrane, or more properly parenchyma, is of the highest order. There are connected with it, made dependent on its natural structure, some of the most important functions of the organism. It is the seat of the internal senses that announce the sufferings of the economy, for the want of the liquid and solid elements of the structure when they are deficient—an annunciation made by the sensations of thirst and hunger, amounting to the intensity of agony, when the want becomes threatening to the existence of the being. It is further, as may be seen from its anatomical composition, an exhaling surface and a secreting organ. Like the external tegument and the bronchial mucous membrane, it furnishes a constant exhalation of watery vapour. As in the skin this assumes the form of sweat when poured out in large quantity, so in the alimentary mucous membrane, when it is inordinately increased, it forms watery and serous discharges. The secretory cryptæ and follicles so profusely provided furnish the various secretions, the general mucous lubricating the whole of this surface, the fluids required for the processes of chymification, in part for chylification it is probable, and for the process of fecation. The quantity of this secretion is frequently immense, as is seen in the amount often evacuated by active cathartics, and which occur in various diseases of the intestinal canal.

In addition to this character of an immense secreting organ and exhaling surface, the alimentary mucous membrane or parenchyma, has deputed to it the functions of digestion—chymification, chylification, and fecation—all of which are dependent on the healthy condition of this structure. The moment it departs from this state in any portion executing any one of those functions, immediately that function is deteriorated or wholly destroyed; and the organism be-

gins to suffer from the immediate and sympathetic consequences of the loss of those functions.

4. The extent of the structure implicated is a consideration of the first import in arriving at an appreciation of the phenomena and results of disease. The mucous membrane or parenchyma of the alimentary organs, by its disposition in folds and arrangement, is of much greater extent than the mere length of the intestines; now these are estimated to be from twenty-five to thirty feet in length, and as forming a surface equal to, if not greater than the whole exterior surface of the body. In the analysis of the phenomena of the first periods of cholera, by the physiological appreciation or translation of the symptoms, it is apparent, that this surface, the alimentary mucous parenchyma, is primarily affected, is the seat and origin of the disease, not limited to a single zone or compartment, or a single element of this extensive and compound structure, as is the case with so many diseases, some of fatal consequences, but is spread over its whole extent, involving all its elements, and deranging, or entirely subverting all the important functions that belong to its natural condition.

A moment's reference to the affections of the external tegumentary parenchyma, so analogous to the internal mucous parenchyma in many respects, will more strikingly elucidate the character of the affection, and remove all difficulty in reconciling the phenomena of cholera to an irritation developed in and occupying the whole extent of the intestinal mucous membrane.

A simple scald, of limited extent, produces no constitutional effects, but if it is general over the whole surface, though not of sufficient intensity to destroy the vitality of the skin, or in any *direct* manner disturbing or interfering with any process or function essential to existence, but merely by the irritation it provokes over so extensive a surface, influences secondarily those organs whose vital activity is indispensable to maintain the functions of the organism, and death most generally ensues, preceded with various phenomena, according to the constitution and temperament of the individual.

An erysipelatous inflammation occupying but a small space, is an affair of no moment; but if it be spread over the whole head, or a limb, or a greater extent of the body, it is then frequently fatal, and its mortality augments in proportion to the extent of the exterior surface it invades at one and the same time.

The acute pustular inflammations of the skin, when the pustules

are numerous, the irritation active, and consequently this parenchyma extensively and profoundly affected in its various elements, extends a perturbing influence to other organs of the economy, and becomes a very fatal disease.

In those instances we are presented with the fact, that an active and extensive irritation existing in the external tegumentary parenchyma, although no function deputed to that structure is immediately connected with vitality, will prove rapidly fatal, by the secondary effects it extends or propagates into the internal surfaces and organs directly connected with the essentially vital functions.

If we have thus the demonstration made to the senses of an irritation primarily seated in the cuticular parenchyma, destructive of the essential functions of the economy, how can we hesitate to admit, that an irritation, involving the whole extent, and every anatomical element of the alimentary tegumentary parenchyma, to the destruction or disorder of all the important functions attached to its natural conditions, and a similar disturbance and disorder necessarily induced in every important organ and function of the organism to which this structure is immediately and intimately associated, may be quite adequate to give rise to all the phenomena we witness in cholera.

An irritation of an active character placed in this structure, though of limited extent, is productive of great disorder in the whole economy, and is often of fatal result. This is seen in a gastritis, duodenitis, enteritis, and colitis. But in cholera, the structure invaded, not by one, but the whole of those formidable diseases, is at one and the same moment, the subject of a violent irritation. The symptoms of those affections, modified by their complication, and by the extraordinary influence carried into so many of the organs and functions, by so extensive an affection, may be very clearly traced in the commencing periods of the disease; and this combination, as it were, of the most severe irritative diseases of this structure, readily explains the rapidity of its course, the alarming character of its symptoms, and its great mortality.

5. As a last circumstance required to comprehend completely the production of the symptoms or phenomena of cholera, as dependent on an irritation of the alimentary mucous parenchyma, are the connexions associating this structure with the other organs of the economy. A direct connexion is maintained with the biliary and pancreatic apparatus, by the continuity of this same structure through the excretory ducts into the very interior of the glands. They

may truly be viewed in the light of mere appendices to this structure.

With the external tegumentary parenchyma it is continuous also, the one passing into the other at the openings where the internal surfaces communicate with the exterior; the one forming the external, the other the internal surface of the body, the trunk of which may be regarded, not inaptly, as a hollow cylinder. It is further continuous with the bronchial mucous or tegumentary parenchyma, which is a reflexion of the alimentary mucous membrane. From this disposition of the tegumentary parenchyma, its two divisions, external and internal, and often its pulmonary mucous membrane, are placed in antagonizing positions, balancing each other in their forces and the amount of circulating or sanguine fluid they contain. A great ascendancy acquired by the one, will be at the expense of another, and place it in a state the opposite of itself. The phenomena of numerous diseases establish this fact.

The nervous connexions of this structure are twofold—that with the ganglionic nervous apparatus, and that with the cerebro-spinal nervous apparatus. The first is the most intimate and important; a single glance at the plate arranged by M. MANEC, and reprinted in this city by Dr. PANCOAST, will be sufficient to strike the most careless observer, with the large amount of nervous tissue belonging to the ganglionic apparatus appropriated to the organs of the digestive functions. The alimentary parenchyma is placed in immediate connexion with the various ganglions and plexuses arranged along the abdominal spine, and through them, with the numerous organs with which they are in connexion, devoted to the functions conservative of the individual. This parenchyma is also in relation with the cerebro-spinal apparatus, directly with the cerebral organs of sensibility and muscular motility by the pneumogastric, and indirectly through the medium of the ganglionic apparatus every where in connexion with the spinal marrow.

The foregoing considerations are indispensable to the investigations of the last periods of cholera; and without holding them in view, it is impossible to form a just appreciation of their phenomena.

There is, further, one other circumstance, it is necessary should be pointed out, before proceeding to this portion of the subject; for it forms with the preceding nearly the whole of the elements of the pathological condition constituting the last periods of cholera. This is the blood.

The sanguine fluid is so important an element of the animal organism, and so immediately engaged in every act of life, that it may

well be termed the *vital fluid*. It is an essential element in each act of vitality, in each especial tissue. But, in these acts are produced the very forces or powers we name vital, as being the source of the vital actions themselves—*life is the product of life*. It is never known to be manifested, but where vitality already exists. It must have a living tissue for its origin and production. Now the blood, essential to the actions productive in the tissues of the vital forces or vital activity, is a compound fluid, composed of materials drawn from the exterior, and to the formation and perfection of which several functions are devoted. The constitution of this fluid, in the condition adapting it to the offices of vitality, is the end of the functions of digestion, excretion, and respiration—and probably others may be concerned in this great process. The sanguine element of the organism, from its compound composition, and the complex processes required for its formation, is liable to variation and deterioration in its constituent principles, and the properties that render it fitted for the production and maintenance of vital activity in the tissues. Every deviation of this fluid from its natural state must, consequently, affect the result of the vital or organic actions, either in the product of nutrition, the energy of the vital forces, or both together. The blood being also an essential element in the composition of every tissue, and of its vital or organic actions, a definite proportion belonging to each tissue in its natural condition, the sanguine fluid concurs in the production of pathological phenomena in two modes—1st, an alteration in the proportion that is natural to a tissue, to the support of its organic actions, and the production of its vital activity in their normal order; 2d, by an alteration in the constituent elements, a vitiation or deterioration of the properties of the sanguine fluid, unfitting it for the purposes of vital activity, and the vital condition of a tissue. From these principles, therefore, it is further necessary, in examining the phenomena of the last periods of cholera, to keep in view the natural constitution of the blood, the characters, so far as can be determined, essential to its adaptation to the vital condition, and what modifications and alterations it undergoes in the progress of the pathological disturbances, and the involving in the pathological state of the organs and functions concerned in its formation.

Numerous analyses have been made of the blood to determine its composition. Although some differences prevail amongst them, yet in the material facts they nearly all agree. The following is the analysis the most complete that has been attempted, and may be taken as probably the most perfect. It is by L. R. LECANU.

Water	-	-	-	-	-	-	-	-	780.145
Fibrin	-	-	-	-	-	-	-	-	2.100
Albumen	-	-	-	-	-	-	-	-	65.090
Fatty matter	-	-	-	-	-	-	-	-	3.749
Colouring matter	-	-	-	-	-	-	-	-	133.000
Extractive	-	-	-	-	-	-	-	-	1.790
Albuminate of soda	-	-	-	-	-	-	-	-	1.263
Muriate of soda	}	Alkaline	}	-	-	-	-	-	8.370
Muriate of potassa									
Carbonate									
Phosphate									
Sulphate	}	Alkaline	}	-	-	-	-	-	2.100
Carbonate of lime									
Carbonate of magnesia									
Phosphate of lime									
Phosphate of magnesia	}	Alkaline	}	-	-	-	-	-	2.400
Phosphate of iron									
Loss	-	-	-	-	-	-	-	-	2.400
Total	-	-	-	-	-	-	-	-	1000.000

The blood consists of two portions intimately mixed while circulating in the large vessels. They are not combined, nor even mixed together in the circulation of all the tissues, and when the blood is taken from the body, and suffered to rest, they separate from each other. The one portion is red and solid, which remains at the bottom; the other watery and transparent, surrounds it, and rises to the surface. The first is the crassamentum, consisting of fibrin and colouring matter; the second is the serum, composed of the water, albumen and saline principles.

The vital sanguine fluid is prepared in the pulmonary parenchyma, the spongy texture of the lungs, and is the product of the function of respiration. In this process oxygen disappears from the air and is absorbed by the blood, carbonic acid is ejected from the lungs, and is eliminated from the venous or recrementitious blood, and the sanguine fluid acquires a scarlet colour. It is blood possessing this colour that alone is vital, that is capable of maintaining the actions of vitality in the animal tissues, and fitted for the development or production of the vital forces. When blood of a dark venous hue, unchanged by the function of respiration, passes into the organism, immediately is life assailed in its source in every tissue, and the functions on which the whole phenomena of life are immediately dependent at once begin to fail.

The cause of the scarlet colour of the blood has not been satisfac-

torily accounted for. It was generally attributed either to the absorption of the oxygen and an action it exerted on the blood, or to the escape of carbonic acid from the blood. Dr. STEVENS, formerly of St. Thomas, at present residing in London, in a work on the blood, has proposed a new theory, which he sustains by many plausible observations, and some striking experiments. He denies entirely all agency of oxygen in the production of the colour of arterial or vital sanguine fluid. Scarlet, he contends, is the natural colour of the blood derived from the action of the saline principles of this fluid on its colouring matter, or hematozine. But this colour is destroyed by the presence of free carbonic acid, which exists in venous blood, produced in the ultimate parenchyma of the organism in the acts of nutrition. As the attraction of oxygen in the lungs for carbonic acid immediately deprives the venous blood of that gas, the natural scarlet colour is then as instantly restored.

The fact is well established by the experiments of Dr. Stevens, that saline solutions do redden the blood even more than when it is merely exposed to the air; and further, that when the clot of blood has been freed, by washing in distilled water, of all its serum and saline principles, that then exposure to the air or oxygen has no influence in reddening its colour—it remains black. We do not know, however, why saline solutions produce this effect on the blood—the cause of its assuming the scarlet hue on their addition is unknown. Neither is the action of oxygen on the blood more clearly ascertained. We are not therefore authorized to infer, that because saline solutions redden blood, that oxygen cannot or does not cause the same or a similar effect. There is one fact that is conclusive, and must invalidate the theory of Dr. Stevens. When black blood is placed in the vacuum of an air-pump, by which the free carbonic acid is necessarily disengaged, instead of becoming scarlet, as it should do were the theory of Dr. Stevens correct, it actually becomes darker.

From the whole of the facts it would appear that oxygen is an active agent in the production of the scarlet hue so characteristic of the vital fluid, but that its action in this respect is facilitated by the serum of the blood, which is a weak albuminous, saline solution.

In the analysis of the blood, water is seen to constitute a very considerable portion of that fluid. The aqueous element plays a very important part in the constitution of the sanguine element, and its offices in the economy. Composing nearly eight-tenths of that fluid, it is obvious, that the watery portion enables it to fill up the large area or space formed by the immense vascular cyst continuous throughout the whole organism, arranged in the parenchymas in the

form of a spongy or cellular texture, and in that of ramified tubes in the vessels. Any considerable diminution of the aqueous element of the blood must occasion an exhaustion of this great sac, and be attended with a tendency to a vacuum, occasioning a collapse or shrinking and shrivelling of the solids in the interstices, and, it is by no means an improbable supposition, between the molecules of which this vascular tissue is arranged, conveying the supplies destined for their renovation. The fulness, plumpness, and elasticity of the solids, are owing to the presence of this element in their texture—it in fact forms a very large portion of the constitution of the organs, as is proved from the great loss of weight produced by desiccation, and it is necessary to the perfection of their properties.

In another point of view, the aqueous fluid, as an element of the blood, is not less important and essential to its natural and healthful constitution. It is the vehicle or medium by which the solid portions of the blood—the globules, fibrin, and colouring matter are transported and conveyed into the interior and intimate structure. The mobility of the blood, and consequently its fitness for circulation, is wholly derived from its aqueous portion, and if this be largely diminished, the movements of the blood are embarrassed, enfeebled, and finally cease, from the viscosity of the sanguine fluid depriving it of the power of motion. To the preceding phenomenon of collapse proceeding from the exhaustion or emptiness of the angeal or vascular cyst or sac, is added the loss of the circulating movement of the blood.

The foregoing preliminary principles became indispensable to a correct appreciation of the phenomena distinctive of the second group of cases composing the third and fourth periods of cholera, but our remarks have extended to so great a length that we must postpone the investigation of these to the succeeding No. of the Journal.

ART. II. *Case of Malformation, with Remarks on the Circulation of the Blood.* By THOMAS ROBINSON, M. D. of Petersburg, Virginia.

EARLY in September, 1828, while confined to bed with a remitting fever, I received an urgent summons to visit a lady whom I had seen some days before in an advanced state of pregnancy—the messenger was also desired to say that something very extraordinary had happened—this hint roused me. I dressed and repaired to the house as

speedily as possible. On entering the chamber, a full grown infant born about twenty minutes before, was presented to me. I was informed that it had struggled strongly for some minutes after its birth, and gasped frequently—the head was finely developed, the face beautiful, the trunk and extremities large and plump, except the left arm, the elbow of which was confined close below the inferior edge of the scapula, the forearm closely flexed, and the whole limb covered by the integuments of the trunk, except the hand, which appeared at the edge of the pectoral muscle—both clavicles, the sternum and cartilages of the ribs were wanting, exposing the whole interior of the cavity of the thorax: as the shoulders and ribs were thrown back in a remarkable manner, being unconfined by clavicles, the abdomen was also open as low as the umbilicus, to which point the margins of the chasm converged from the second false rib at each side; along the right margin, the umbilical cord appeared to ramify, and there to expend itself—the investigation of this part, however interesting, was not pursued. At the right side, close within the verge of the opening and about midway between the umbilicus and rib, a body about the size, colour, and shape of the gizzard of a large fowl presented itself; this mass attached to the margin was hard and *perfectly fibrous*, well furnished with blood-vessels, and communicated by a small branch with the funis; it had no communication with the duodenum, no trace of gall-bladder, and in no particular resembled the liver—the liver and spleen were wanting; the diaphragm cleft, a narrow strip at each side being barely cognizable; the lungs were wanting, the trachea terminated about the place of the first dorsal vertebra, in a knob of cellular and parenchymatous substance not larger than a hickory nut; at the left of the *spine and higher in the thorax than usual*, was seen the heart without a pericardium, it was placed very obliquely as well as high up, so that its apex could not have struck below the third rib; it acted with surprising force and regularity between 60 and 70 times in a minute, and appeared to carry on the circulation, as the aorta pulsated very distinctly; my whole attention was immediately riveted on this unexpected phenomenon—as I am one of those obstinate people who will always see things as they appear to their own senses, and understand them according to the dictates of their own reason, I have been long puzzled on the subject of the circulation, by the discrepancies of facts and theories exhibited by systematic writers. Whenever I have found it difficult to adapt plain phenomena to preconceived notions, instead of straining the facts to fit the notions, I have unceremoniously discarded the notions and retained the facts; this is at least a safe practice: in the case before us, I shall first en-

deavour to describe with scrupulous exactness, the action of the heart exhibited to my own sight and touch, and I think I can afterwards satisfy you, that the same phenomena have been seen and felt by others, and rejected as incompatible with some favourite theory.

Viewing the heart and feeling it during the pause, although it was perhaps less hard than in either diastole or systole, yet it did not appear in that state of complete relaxation which physiologists ascribe to it; perhaps the antagonizing powers were merely in equilibrio; possibly the contracting power predominated; from this state of quiescence it would suddenly spring dilated with surprising force, its apex elevated with a jerk, finish its double action in the twinkling of an eye, and fall back as suddenly to the stillness of death; no motion like sudden or gradual relaxation appeared in its fibres, though vigilantly watched for, and indeed expected; the diastole, which always preceded, appeared to commence in the venous sinus, and pass without interruption and with immense velocity to the apex; the systole pursued the same course with equal velocity. When you consider that this double action was completed in a space of time less than half a second, perhaps not more than a third, for I think the time of the pause nearly, if not quite double the time of the action, you will readily comprehend the difficulty of noting particulars in their exact order; that the action passed from base to apex was visible enough—also that the diastole preceded the systole; but so rapidly did the systole succeed the diastole, that I could hardly ascertain with perfect satisfaction to myself, whether the diastole of the ventricle was *entirely* completed before the systole of the auricle commenced; my decided impression however is, that at one and the same moment the diastole is finished, and the systole commenced. It may here be asked, if the diastole continues for so brief a moment, is there sufficient time left for the blood to occupy the cavities? I would answer, were dilatation a passive movement, it would certainly require more time for the pressure of the blood to overcome the vis inertia of the heart, and dilate its cavities, but when we consider that the blood is accumulating in the adjacent vessels during the pause, and under strong pressure, and when we estimate the great force and velocity with which the cavities dilate and the consequently powerful suction they exert, we can hardly doubt that they are *instantly* filled; at the moment of diastole the apex of the heart was elevated; at the moment of systole it fell back with great suddenness. After watching the heart in situ fifteen or twenty minutes, and frequently grasping it to ascertain its force in dilating, I separated it from its connexions; its action continued without sensible diminution, either in frequency or

force, and in that state it was put into the hands of different individuals, that they might be qualified to testify the fact. I then proceeded to examine the state of the valves and septum, which were found as usual; the foramen ovale open, the pulmonary vein and artery, cava and aorta of the proper size; in this state, with auricles and ventricles laid open and roughly handled, the heart was thrown into a basin of cold water; after examining the other viscera for some time, I returned to the heart, and was surprised to find it still moving, feebly it is true, but with perfect regularity; the attention of the spectators was again directed to this unexpected state, and it was again placed on the hand of Mrs. F. who attended the accouchement. At this period I felt myself sinking so fast, that I was reluctantly obliged to retire without inspecting the viscera of the pelvis, tracing the lesser circle of circulation, or even injecting the funis, the course of which I could not even conjecture without such aid. In a few brief propositions, I will here recapitulate the principles which this interesting case has fully established in my mind.

1st. Systole and diastole are the natural muscular actions of the heart.

2d. The force of the diastole is equal to, if not greater than the force of the systole.

3d. There is no pause between auricle and ventricle, either in diastole or systole; the action passing from base to apex with great velocity; *perhaps* accelerated, *certainly not* retarded.

4th. There is not only no pause between the diastole and systole, but the latter almost seems to appear before the former vanishes; thus presenting the appearance of one compound action in which all the parts concerned coöperate perfectly.

5th. The diastole always precedes the systole in the natural order of action. BICHAT's experiments led him to the same conclusion.

6th. Similar actions in similar parts of the different sides are always synchronous.

7th. The time of action, including systole and diastole, is less than the time of the pause.

8th. The pause succeeds the systole of the organ.

9th. The impulse of the apex against the side of the thorax is caused by the diastole of the auricles, especially the left—for as the distance of the axis of the heart from the diaphragm must be increased by the increase of its transverse diameter in diastole, and as it is firmly tied down at its base, this increase of distance of the axis can be effected only by its turning on the distended auricles—as each ac-

tion of the heart is performed by a convulsive jerk, the force of the impulse is naturally accounted for.

10th. There is in the heart a *vis insita* or *vita propria*; this is demonstrated by its perseverance in action so long after its entire separation from all influence of brain, nerves, and ganglions.

The system of action deduced from this case, exhibiting a perfect coöperation of the whole organ in each action, and concurrence in repose, seems much more simple and consonant to nature than the complicated series of alternations so zealously inculcated by the ancients, and which, with but very little modification, has kept possession of the schools to the present day: passive diastole of auricles—active systole of auricles—passive diastole of ventricles—active systole of ventricles: in this series we are presented with a perpetual union of action and inertia in the same organ—one-half being always asleep, and part of the power of the waking half continually wasted in overcoming the inertia of the sleeping half; this I never could receive; but after witnessing the simple series of nature, diastole of the whole organ, systole of the whole organ, repose of the whole organ, the former arrangement appears only as a clumsy, ridiculous contrivance.

Most of the errors connected with the subject of the circulation, from HARVEY to the latest writers, may be traced to one and the same source, that unaccountable delusion, that during its diastole the heart must be in a perfect state of inertia. “*Fibris enim propriis dilatari repugnat oculo.*” (HALLER, prim. lin.) “*Neque relaxatio cordis aliquarum fibrarum actio naturali est.*” (Coroll. de cord. mot.) “*Diastolen nullius strati musculosi opus esse, sed relaxationem et meram inertiam.*” (De sang. mot. ejusq. causis.) Consequently the inert auricles must be dilated by the pressure of the blood from the contiguous veins, and consequently power lost—they must be stimulated to contraction by the blood forced into their cavities—the whole of the force with which they contract must be wasted in dilating the torpid ventricles, which in their turn must be stimulated to contraction by the fluid forced in, and by no other cause—“*Non aliam causam esse hujus in motu pertinaciæ præter ipsum perpetuum sanguinis adfluxum.*” (De cord. mot. a stimul. natur.) Thus, from a single preconceived error a series of absurd alternations have been ascribed to the heart. “*Ut auricularum contractio cum ventriculorum relaxatione, ventriculorum systole cum auricularum diastole conjuncta sit.*” (De mot. sang. per cord.) A system repugnant to nature, to reason, and to the recorded observations of its advocates—a system by which the heart is deprived of about three-fourths of its

power as an agent in circulation; for, by denying the power of the diastole, you deny at least half the power of the heart; and as the whole systole of the auricles is wasted on the diastole of the ventricles, that too must be deducted, leaving only the systole of the ventricles.

Such is the system of Harvey and his successors:—"Hæc in cordis motibus series Harveio quidem placuit omnibusque anatomicis ab eo qui viva animalia operuesunt." (De mot. sang. per cord.) Although so many alternations successively performed *in one second*, would seem to leave little time for pause, yet I believe all physiologists, ancient and modern, concurred in the belief of at least an apparent pause, after the systole of the ventricles. "Expulso sanguine cor quiescit ex solo stimuli defectu" has been generally received as an axiom till the time of LAENNEC—he supposes, that the heart pauses while the ventricles are subjected to the double stimulus of distention and of the blood; this error, for *pace tanti viri error* it is, grows naturally out of the theory under review. Laennec, in exploring the thorax, hears two sounds in rapid succession, followed by an interval of silence, marking, as he supposes, the pause of the heart; the first sound is accompanied by an impulse felt in every part of the arterial system; this impulse is probably the cause—it cannot proceed from the systole of the auricles whose impulse cannot reach the arterial system, it must therefore be ascribed to the systole of the ventricles; the second sound must have some active cause—diastole is passive, therefore silent—the only remaining cause then, to which it can be ascribed, is the systole of the auricles. This course of reasoning seems to lead more directly than any other to Laennec's conclusion, which after all is a non sequitur; for I more than suspect, that the true cause has been omitted in the enumeration; besides, the premises are all false. MAGENDIE admits that the heart is not entirely passive in diastole; BICHAT affirms that it is powerfully active, and the case before us confirms the fact—the diastole then is as likely to be heard as the systole.

That both systole and diastole of the ventricles are uninterrupted continuations of similar actions of the auricles, seems also to be established; their sounds, if any, must therefore be indistinguishably blended.

If the auricle and ventricle coöperate in the diastole, as I think I have seen them do, there is then a continued column of blood from the venous to the arterial valves; consequently, the first impulse of systole at the base of the auricle is felt through the whole arterial system. Again, considering the diastole of the auricle as the cause of the impulse of the apex against the side, (Prop. 9th,) and remem-

bering also the celerity with which the systole follows it, (Prop. 4th,) I think the impulse of the apex against the side, and the commencement of the systole in the base, must be so nearly synchronous that no variation can be distinguished by the senses—the vibration generally perceptible in a strong pulse, may be ascribed to the increased impetus from the superior power of the ventricle. Haller, after ascribing the stroke against the side to the systole, and especially to the curve given by that action to the apex, is obliged in candour to acknowledge that there is a further cause, to wit, the diastole of the left venous sinus—"Antrosum preterea pulsus a sinu sinistro venoso, qui eo imprimis tempore repletur." (Prim. ltr.)

If this view of the circulation be correct, and I at least must believe that it is, we ought to proceed without delay to review our system of diagnosis in cardiac diseases, more especially that part which depends on the stethoscope, (I would fain call it stethacoust, as I do not *see* but *hear* through the instrument.) I hope you will not suspect me of attempting by any of my remarks to depreciate the invaluable labours of Laennec, to whose sagacity and industry our profession is so deeply indebted. On the subject of his errors I would only say—"nonnunquam bonus dormitat Homerus."

That Haller and many of his predecessors, contemporaries and successors, who practiced vivisections, saw the very same actions of the heart which I have described, but explained them to suit preconceived notions, might be proved by numerous quotations. They saw and felt the heart dilate with force. "Observavimus apertopectore et pericardio, &c. &c."—"prementem digitum *valde* repellere." (Stenon. act.) "Cordum pulsat, digitum repellit non sine robore." (Haller passim. de mot. cord.) Can any one believe that the finger was repelled by such a *contraction*—"ut basis apici, ventriculus ventriculo fiat propior"—the organ literally shrinking in all its dimensions would have receded from the hand: would not forcible dilatation have been a more plausible agent of strong repulsion? but the heart is passive in dilatation, therefore the finger was repelled by contraction. They saw the heart dilate and contract from the energy of its own innate power, without mechanical distention or stimulus. "Motus cordis non turbatur capite resecto neque corde avulso." (De mot. cord.) Hundreds of similar observations on this point might be collected from various authors. They saw the same blended action of diastole and systole, as I have described, as even Harvey acknowledges, (Exerc. de motu sang.)—"In calidioribus animalibus motum cordis et auricularum videri quale simul fieri." Haller expresses himself to the same effect in the following passage:—"Dum alacriter auriculæ micabant intervallum quo

earum motus præcedit cordis motum diu ægre distinxi *donec animal vegetum fuit.*" (De mot. cord.) Again—"Et tamen, *candosis mei est*; phænomenon non *dissimulare* quod ipse vidi et ante me Lancissius, omnino nempe credas te videre, eodem tempore, et duas aurículas constringi et duos ventriculos." (De mot. cord.) Haller in this passage acknowledges that the facts he states are inconsistent with his theory; on this ground LANCISSI arraigns the series of Harvey, and proposes one perhaps nearer the truth, but still defective. I hope I have by this time convinced you that I saw nothing new in this case, and can therefore claim only the vulgar merit of crediting my own senses.

A strong argument in favour of the series of actions suggested by our case, may be founded on the structure of the organ itself. Who ever inspects with candour and attention the structure of the valves, will find it difficult to persuade himself that they are adequate to the function generally assigned to them; he may easily ascertain that they offer an *impediment* to the reflux of the blood, but hardly that they afford a complete obstruction; but as the contraction of the auricles is less powerful than that of the ventricles, such reinforcement seems necessary to prevent reflux.

Of this imperfection of the valves Haller was convinced by the inspection of living animals, and remarks, "*Non adeo fidelem valvularum custodiam esse.*" (De mot. sang. ejusq. caus.) Again he says, "*Neque adeo in vivo animali, tantam esse valvularum efficaciam ut vulgo creditur.*" If such is the inefficacy of the valves, suppose the auricle in diastole and ventricle in systole, (according to the received opinion,) the reflux must seriously diminish the quantity of blood sent to the arterial system; but suppose with me, that the auricle is in a state of contraction, the only safe-guard against reflux at this time, then will the whole of the blood contained in the ventricle be transmitted by its systole to the arteries; the auricle being less firmly guarded in this way, we perceive a reflux at every contraction, which however is checked by the column advancing in the veins; this simple explanation of the reflux appears less objectionable than that of Magendie.

While Bichat affirms that the heart dilates with a force which no effort of the hand can prevent, is it not surprising that he has neglected to apply a power so great and so obvious to the elucidation of that obscurity of the venous circulation, on which he acknowledges authors have hitherto shed few rays of light; to you it is unnecessary to demonstrate that the pressure of the atmosphere on the veins external to the cavities must be propagated to the termination; that the

cavities being always full, there is a continued pressure on the vessels within them; add to this the powerful dilatation of the heart, auricles and ventricles coöperating in the action, as I have seen them, and you have all the requisites of a powerful sucking pump operating perpetually on the venous system. Dr. JAMES JOHNSON, whose suggestions are always worthy of attention, has long declared his belief in the existence of such a power.

That the heavy mass of blood contained in the inferior part of the trunk and lower extremities could be elevated to the heart of a tall man standing erect, by the sole force of insensible contraction of the capillaries, (as Bichat supposes,) is so startling an hypothesis, that were I obliged to say *credo* to it, I should certainly add in the words of the old churchman, "*quia impossibile est*:" besides, this insensible contraction of the capillaries has not been demonstrated; the pump I think has been, and that its agency in the venous circulation is more powerful than that of any other cause yet assigned, or than the combined powers of all the other causes, I have no doubt; other causes not immediately connected with our case I shall pass by with one exception. Dr. BARRY, in one of the loosest and most illogical essays that ever obtained the approbation of a learned institute, and in which he betrays a marvellous deficiency in pneumatic and hydraulic science, has attempted to show that the venous circulation is greatly promoted by inspiration; the blood he thinks rushes through the veins towards the cavity of the thorax, to fill the vacuum occasioned by the elevation of the ribs; he forgets that the air also rushes towards the opening vacuum, and that if two fluids, one of which is highly subtle, the other dense and viscid, present themselves under the pressure of the atmosphere at equal apertures, to an opening cavity, the quantities of these respective fluids, entering in a given time will be found in the increase ratio of their density and viscosity. If Dr. B. has any doubts of this truth, as he is fond of experiments, let him procure a large syringe furnished with two pipes of equal diameter, one being curved; let him immerse the aperture of one in fluid blood, or any other fluid equally dense and viscid, the other remaining in the air—then draw back the piston and ascertain the ratio of air to the other fluid in the machine, provided he finds any other; afterwards let him compare the lax, inelastic, long, tortuous vessels, through which the venous blood has to pass, with the wide, elastic, short, patulous pipes which admit the air. Should he afterwards demand the advance of more than half a drachm of blood for each inspiration, I shall consider him a very unreasonable person. Were it necessary at this day, it would be easy to show that the venous circulation is on the whole retarded by respiration.

ART. III. *Remarks on Cholera as it appeared in the Alms-House of King's County, New York. With cases.* By JOHN B. ZABRISKIE, M. D. Physician to the Institution.

THE cholera made its first appearance in the Alms-house on the 17th of July. During its progress it put on several distinct forms, constituting well-marked varieties, having a difference of symptoms and duration, and requiring a different treatment. All the cases that occurred at the same time, however, put on pretty much the same character, and the diarrhœa which prevailed almost universally through the establishment, ~~changed~~ changed its character simultaneously with the cholera. I have enumerated five varieties, which occurred in the order in which they are here placed. I will first give a particular account of the symptoms of these varieties, and then a few cases illustrative of each.

I. *First variety.*—It commenced with a diarrhœa of a few hours continuance, when the patients were suddenly attacked with nausea and vomiting, great prostration, great distress in epigastrium, which was very tender upon pressure, burning heat in the stomach, and strong desire for ice and cold drinks, stomach very irritable, cramps and coldness of the extremities, feeble pulse, and great anxiety. The evacuations were watery, and contained a white sediment. There was pain and distress in the head, but not that stupor and somnolence which prevailed in the other varieties.

CASE I. Jeremiah Myers, aged fifty-seven, after eating green apples and drinking some brandy, was attacked with a diarrhœa at 1 o'clock, A. M. on the 20th of July. At 6 o'clock he was up as usual, and while making fire fell down, being seized with vomiting, faintness, and a great increase of the diarrhœa.

9 A. M. When I first saw him he was vomiting a watery fluid tinged white, his stools were like yellowish water with white flakes at the bottom, his urine was suppressed, he had violent cramps in his legs and abdominal muscles. He complained of great anxiety, gastric distress, burning heat in his stomach, ardent thirst, strong desire for cold drink, dizziness in his head, ringing in his ears, tenderness of the epigastrium upon pressure, and distress in the region of the heart. His voice was hoarse, so that he can scarcely be understood, his pulse was very small, the extremities cold, but without much moisture, his tongue was white, clammy and cold, its edges pale. There was no stupor or somnolence. Ice was given internally,

and all drinks were prohibited. Frictions of spt. turpentine were made upon the extremities, and hot bricks were applied to them, cups were applied to the temples, fomentations of tinct. opii and vinegar to the abdomen, and leeches to the epigastrium. The ice allayed the thirst, relieved the heat in the stomach, and the vomiting; the leeches obtained but little blood.

1 P. M. Pulse rather stronger; spasms, stools, and vomiting have ceased; the extremities are warmer, still great internal distress, and tongue cold. The ice and external heat are continued.

8 P. M. His extremities and tongue are warm, the edges of the latter are becoming red, the pulse is small and corded. He complains of great distress and tenderness of the epigastrium. Has had one watery stool. Ten drops of tinct. opii produced immediate vomiting. Leeches were applied to the epigastrium, which relieved the distress, and in thirty minutes he fell asleep. Fomentations to be continued to the abdomen, and hot bricks to the feet.

21st, 8 A. M. Feels better, he has no diarrhœa or cramps, pain in his head and stomach relieved, tongue red and warm. A solution of gum Arabic was given as a drink, in small quantities.

22d. Convalescent. Arrow-root is allowed in small portions for diet.

CASE II. Elizabeth Hogan, aged twenty-two, of sanguine temperament, was seized on the 20th of July with evacuations of a watery fluid with a white sediment. This was soon followed by vomiting, and cramps in the legs and feet. She complained of great thirst, and vomiting immediately upon drinking, of a sensation of burning heat in the stomach, of great distress and giddiness in the head. Her tongue was moist, clammy, and cool. Her pulse was very feeble, and the extremities cold. She had great anxiety, but no stupor, or somnolence. Ice was given internally, cups were applied to the forehead, hot bricks to the extremities, and hot vinegar to the abdomen. She devoured the ice greedily, and after taking about one pound, said it had relieved the internal heat of which she complained. The thirst and nausea ceased, and she then took thirty drops of tinct. opii with fifteen of the essence of peppermint. This put a stop to the discharge from the bowels, she fell asleep, perspired freely, and the next morning felt entirely relieved.

II. *Second variety.*—The second variety well deserves the name of mortal cholera, given to it by BOISSEAU. It ran its course in a few hours, seldom more than eighteen, often in three or four, and was almost universally fatal under every form of treatment. It generally began

with a feeling of distress in the head, stomach, and bowels, or with a diarrhoea of a few hours continuance. The vomiting and cramps came on very soon, accompanied with great anxiety, and distress in the præcordia, contraction in the features, cold, clammy and pale tongue, sinking of the pulse, cold, moist and wrinkled extremities, great difficulty of breathing, and frequent sighing. The eyes were sunken, and surrounded by a livid circle. The evacuations were generally not as abundant as in the other varieties; they were in most cases watery, with a whitish sediment, sometimes limpid, and a few tinged yellow, the urine was suppressed. From the first there was great prostration and anxiety, the patients sank very rapidly, they complained of feeling hot, and would throw the bed-clothes off of them, but there was not that burning heat in the stomach which existed in the first variety, and although the thirst was very great, there was not that desire for cold drinks, and if ice was put in their mouths they would often take it out, or let it remain without chewing or swallowing it. In the interval between the cramps they lay in a stupid kind of sleep, but when roused by cramp, thirst, distress, or by speaking to them, they appeared perfectly sensible and rational. This form was generally fatal under every variety of treatment. It prevailed soon after the commencement of the epidemic, and caused more deaths than all the other varieties together. This is probably the form that prevailed at Paris during the first weeks, when ninety-six out of ninety-seven died in the hospitals, as stated by Drs. PENNOCK and GERHARD in the twentieth number of the American Journal of the Medical Sciences. Every variety of treatment was tried here with little success; bleeding, leeches, and cupping, mercury internally and externally, rubefacients, baths, stimulants, anodynes, astringents, and purgatives, were all tried in vain.

• CASE III. Jeffrey —, a negro, aged about thirty, had been engaged in removing street manure, received in a vessel from New York, with three others, two of whom had died of cholera. On the 27th of July, at 6 A. M. he assisted in burying one of these, and immediately afterwards drank to excess. Before he reached home he was attacked with diarrhoea, great gastric distress, and nausea. After being transported a great distance, he reached the Alms-house at 12 A. M. He then complained of great faintness, thirst, anxiety, distress in his stomach, head-ache, and ringing in his ears. He had violent cramps of his extremities, passed a thin, greenish, watery fluid, with a gelatinous sediment, had vomited a watery matter, the urine was suppressed. His tongue was white and cold, his pulse

scarcely perceptible, the heart palpitating violently, the veins of the conjunctivæ were injected, the skin on the extremities cold, moist, and wrinkled, voice feeble and hoarse, he lies stupid except when roused by cramp and distress.

He was bled six ounces when the blood ceased to flow; cups were applied to the temples and epigastrium; the extremities were rubbed with spirit of turpentine, and hot bricks were applied to them; ice given internally, and alcohol was applied to the arms and fired. By these means the warmth became greatly restored, the pulse became stronger, the head less oppressed, the cramps, vomiting, and purging ceased. He complained of pain in the umbilical region. Leeches were applied to this part.

During the night he was allowed to throw off the clothes, and bricks were not applied; he became cold again, and died before morning.

CASE IV. Gall, aged fifty-five, had been intemperate before he came to the house. He had for some time complained of pain and heaviness in his head, and on the 31st of July, at 1 A. M. was attacked with diarrhœa, soon followed by vomiting, great gastric distress, anxiety, and prostration. At 3 A. M. he complained of great distress in the epigastrium, region of the heart, and intestines; he had violent cramps in the extremities, his skin was cold, moist, and wrinkled upon the extremities, his colour was purple, his tongue was cool and clammy, his pulse was weak and corded, he complained of pain in the head, but no heat or burning in the stomach. The evacuations were watery, and drinking caused vomiting. He was bled six ounces when the blood ceased to flow. Cups were applied to the head and abdomen, thirty leeches to the epigastrium, and ice was given internally, but no drink. Ol. terebinth. sinapisms and artificial heat were applied to the extremities.

6 A. M. No amelioration. Somnolence. The discharge continues involuntarily almost like water, no urine, cramps continue in a very distressing manner. His tongue is cold, his colour dark, skin cold and covered with a copious sweat, frequent sighing, and sense of constriction across the chest. His legs were well rubbed with spirit of turpentine, and then cloths wet with the alcoholic solution of camphor wrapped around them, over which rollers were applied tightly, but these had little effect upon the cramps. Forty drops of tinct. opii had the effect of increasing the distress in the head without relieving the bowels.

10 A. M. Pulse gone, tongue and extremities cold, there is little

cramp, but a great deal of tossing about. When he lies still he is apparently stupid. He died at 12 A. M.

CASE V. E. C. aged thirty, of slender make, and nervous habit, was attacked on the 1st of October, at 6 A. M. when she first left her bed with vomiting and purging, without any premonitory symptoms. 10 A. M. She complained of great distress in her stomach, head, and bowels; the evacuations were like water, with a white sediment like broken grains of rice. Her pulse was very feeble, skin moist and cool, contracted over the muscles, her colour a dark purple, the eyes were sunk and surrounded with a livid circle, features sharp, tongue cool, there was great anxiety, thirst, and inclination to sleep. She took calomel, grs. xx.; opium, gr. j.; hot bricks were applied to her feet, mustard to the abdomen and legs. The calomel was to be repeated every hour in doses of ten grains, with five grains of kino. At 11 A. M. she had some cramps, but not many or violent, when her legs and spine were well rubbed with hot spirit of turpentine.

1 P. M. No better. The stools are of the same colour, and passed involuntarily, running through the bed. She complains of great thirst, but is indifferent whether her drink be warm or cold, frequent sighing, oppression of breathing, a sense of constriction in the chest, cramps occasionally, tongue cold. She cannot lie upon her back, but can upon either side, and sinks into a stupid kind of sleep, except when roused by cramps, thirst, or distress. Mercurial ointment with pulverized camphor and Cayenne pepper, was rubbed upon her abdomen, spine, and legs. The calomel was continued every hour, and an enema was given her of starch, \mathfrak{z} iv.; tinct. opii, \mathfrak{z} j.; pulv. kino, gr. xx. A liniment of spirit of turpentine and ammonia was applied to the spine, and a hot iron passed over it. Artificial heat continued to the legs, and mint tea given for drink. The injection soon came away, and was repeated with a solution of the acetate of lead added to it; this was also passed very soon, and another was administered, with pulv. opii and catechu, but with no better effect.

4 P. M. The calomel distresses the patient very much, producing nausea after every dose, which brings on cramps. The pulse is entirely gone, the countenance very cadaverous, the whole skin is of a dark brown colour, nearly livid; sighing frequently, complaining of great difficulty of breathing, and crying for drink.

After this she had little cramp, the calomel being discontinued, but gradually sank away till 10 P. M. when she expired.

In this case calomel appeared to distress the patient, producing

nausea and cramps. The rubefacient applications to the spine appeared to relieve the cramps more than any other means which were used.

CASE VI. Jane Cunningham, aged fifty, was attacked with diarrhoea on the 31st of July, which, in a few hours, was succeeded by vomiting and spasms. She had been a lunatic for many years, and her derangement was always greater when the moon was full. At these periods she was always more restless, and irritable in her temper, and wandered out at night. It had long been her custom to walk around the walls of a burying-ground belonging to the Alms-house, talking in a loud voice. This she always did in winter and in summer; and cold, storms, or snow could not prevent her doing it whenever the moon was full.

On the 31st of July she had an attack of mild spasmodic cholera, which easily yielded to rhubarb and magnesia. On the 7th of August, at 1 A. M. she had a return of the symptoms, which soon became very severe. At 3 A. M. she had a vomiting and purging of a watery fluid, tinged white, cramps in her legs, feet, and hands, her pulse was slow and weak, her tongue cold and clammy, her eyes were sunk, her features sharp and contracted, skin cold, moist, and wrinkled upon the extremities. She complained of distress in the head and stomach, and great thirst, but no burning or desire for cold drinks. She was bled ten ounces, and the pulse sank immediately, she then took tinct. opii, gtt. xxx.; ether, ℥j. The following mixture to be given every half hour. R. Æther, ammoniæ, āā. ℥ss.; aq. menth. ℥j.; M. After each dose the pulse rose, the breathing was easier, and the patient was roused for five or ten minutes, when she would again relapse into the same state. Cups were applied to her head, heat to her extremities, and a sinapism to the abdomen.

10 A. M. Pulse rather fuller, very slow, the extremities are warm, she feels less distress, and no cramps. The breathing is stertorous, the pupils of the eyes are dilated, the conjunctivæ red, she is very stupid. Leeches were applied to the temples, mustard to the legs and ankles, fomentations to the abdomen. They had no effect, she continued in this stupor without cramp, till 3 P. M. when she died.

The stimulants employed in this case, although they caused the pulse to rise, produced so great a determination to the brain, as to throw the patient into a state resembling apoplexy, and which proved fatal after the prominent symptoms of cholera had ceased.

There were several causes which conspired to render this variety of cholera so fatal.

1st. Its peculiar malignancy, the violence of the symptoms, the shortness of the stages, and especially of the first stage.

2d. It prevailed generally at the commencement of the epidemic, when the nature of the disease and the necessity of an early attention to the first symptoms were not sufficiently known.

3d. It prevailed mostly among persons whose constitutions were already broken down by intemperance, or by some other cause, and especially among those, whose digestive organs were deranged. As persons who are in the habit of drinking to excess, are subject to frequent looseness of the bowels, it is conceivable that they would be more liable to cholera. And such persons, when attacked with the first symptoms of cholera, have mistaken them for the ordinary effects of drinking, and thus neglected them until it was too late.

III. *Third variety.*—The third variety may be denominated cerebral cholera, because the affection of the brain was the prominent symptom. It generally commenced with diarrhœa and nausea, soon followed by vomiting. There was great stupor, from which the patient was only roused by great distress, or by his attendants, and when spoken to was dull, slow in answering, and generally very sleepy. There was seldom much cramp, but a numbness of the extremities.

CASE VII. James Thompson, aged sixty, after six hours diarrhœa was seized on the 5th of August, at 6 A. M. with nausea, and distress in the epigastrium, great heaviness and distress in the head. He appeared very dull and sleepy, almost stupid. His stools were like water, and voided without pain, his eyes were red and dull, his pulse slow and weak, his tongue moist and clammy, rather cooler than natural, his feet were cold, and there were some cramps in the calves of his legs, but not many or violent. He complains of thirst, a pricking and numbness of his hands, and tenderness of his epigastrium. Cups were applied to his head, sinapisms to his feet, ankles and legs, and hot bricks around these. When the cups were applied, the patient appeared to be asleep, not feeling the pain of the operation, but before it was finished he roused up, appeared to be relieved, and said the pain and heaviness in his head were better. Fomentations were applied to his abdomen, his hands were rubbed with hot spt. terebinth. and a solution of gum Arabic given as his only drink.

1 P. M. He has had no evacuation since, the vomiting has also ceased, he still has great distress in the epigastric region, some pain and distress in his head, his tongue and extremities are warm.

Twenty leeches were applied to the epigastrium, ten to the head, and the same drink continued.

6th. He has had no evacuation or nausea since, he feels considerable appetite, and less thirst. The dullness is much better, but not removed, the numbness of the extremities is not felt. Sinapisms were continued to his feet, and another placed upon the back of the neck. Arrow-root was allowed for diet.

7th. Convalescent. All the violent symptoms have entirely disappeared. He was still allowed only arrow-root and crackers, though very desirous of food, and in a few days gained his strength.

CASE VIII. Susan —, aged thirty, after a few watery stools, was attacked on the 7th of August with nausea, great distress in the stomach and head, stupor, so that she can scarcely be made to answer a question. Her pulse was slow, and not very weak, her tongue was moist and clammy, she had no cramps, but complained of a numbness and pricking of her hands and feet, of thirst, and nausea upon drinking. She was bled sixteen ounces, which relieved her immediately, mustard was applied to her feet, ankles and wrists, absolute diet prescribed, and gum water for drink.

8th. The numbness and stupor were entirely gone, she had had no evacuation since. She was confined to a diet of arrow-root, and the next day was well.

All the cases of this variety presented pretty much the same symptoms, and all that came under my observation were successfully treated with bleeding, either general or local, sinapisms to the extremities, absolute diet, rest, and mucilaginous drinks.

IV. *Fourth variety.*—The fourth variety appeared to have its seat in the small intestines principally. It presented many of the same symptoms as the second, only milder in degree. There was less vomiting, stupor, and symptoms of asphyxia, than in the second variety, and more diarrhœa. The stages were of longer duration, and the first stage of diarrhœa always well marked, and generally of two, three, four, or more days continuance, and when taken in this stage it could almost in every case be subdued, consequently those cases which were fatal were in almost every case only those which had been neglected. In this form calomel was found of great service, either given in large doses as a purgative, or in small doses to produce salivation. The physiological plan of leeches to the abdomen, perfect rest, absolute diet, mucilaginous drinks, warm bath, and fomentations to the abdomen, was safer and not less certain, and there was no risk of a troublesome salivation afterwards.

CASE IX. Amanda Emory, aged twenty-three, was attacked on the evening of the 23d of August, with cramps, vomiting, and purging of yellowish water. She had had a diarrhœa two days, for which she had taken laudanum and peppermint. She now complained of pain and distress in the umbilical region, considerable colics, of cramps in the calves of the legs and feet, of great thirst, and vomiting of her drink, but no burning or heat in her stomach. Her extremities were cold, the skin wrinkled, and the colour purple, her pulse was very feeble, her tongue clammy and cooler than natural. She took twenty grains of calomel and one of opium, cups were applied to her head, mustard to her abdomen and legs, frictions of hot ol. terebinth. were made upon the extremities and spine, warm mint tea was given for drink. The calomel in doses of ten grains, with one-half a grain of opium and five grains of kino, was ordered to be given every hour till the stools assumed a greenish hue. They became of this colour in four hours, when after an injection of starch, kino, and tinct. opii, the cramps and other violent symptoms entirely ceased.

24th. She has still a considerable discharge from her bowels, but of a green colour, her pulse is much fuller, extremities warm, pain removed. She is slightly salivated. Perfect rest and a diet of arrow-root prescribed, which soon restored her.

CASE X. Molly M^cClean, aged twenty-one, of a plethoric habit, and athletic, was seized with a diarrhœa on the 22d of August. The discharges were very frequent, and after the contents of the intestines were evacuated, they became watery and whitish, she occasionally felt slight colic pains in the umbilical region, otherwise feels no inconvenience, no nausea, and the appetite good. Twenty grains of calomel were given, followed by two doses of ten grains each at intervals of an hour. The discharge became green after the third dose, when thirty drops of tinct. opii were given, which caused it to cease for that night.

23d, 8 A. M. This morning the discharge returned with great violence, the feet are cold, urine suppressed, nausea, great thirst, and vomiting upon drinking. She was confined to bed, with hot bricks to feet, warm mint water for drink, five grains of calomel and half a grain of opium given every hour.

5 P. M. Complains of soreness of gums, discharge is less, the powders are discontinued.

24th, 6 A. M. She is salivated, and has had only one evacuation through the night.

10 A. M. The discharge has commenced again, the salivation has ceased, she feels very little soreness of the gums, the urine still is

suppressed. Calomel and kino, of each five grains, were given every hour, and an injection of starch and tinct. opii. Towards evening the discharge again ceased, and the mouth again felt sore, the urine still, however, was suppressed, and drinking caused vomiting.

25th. She appeared better, and was salivated again, there having been no evacuation through the night, the urine still suppressed. About 10 A. M. the discharge again appeared, the salivation ceased, and all the symptoms became more intense. Calomel was again given, with cold water for her only drink, sinapisms were applied to the abdomen, and anodyne injections were administered. This evening she was profusely salivated, and from this time she became better, all the violent symptoms having ceased except strangury, which was relieved by the catheter.

V. *Fifth variety*.—The fifth variety appears to have its seat at the commencement in the greater intestines. It makes its first appearance by a diarrhœa of several days continuance. The patient feels generally little inconvenience, no pain or distress except in some few cases where there are some colic pains felt. The appetite continues good, and in the first days the strength is undiminished so that the patient generally follows his ordinary business. As the disease advances the strength and appetite begin to fail, there is more or less uneasiness in the lower part of the abdomen, the urine which at first was undiminished, becomes more scanty, the stools more profuse, the head feels heavy and painful, the patient complains of thirst, and if he drinks it passes through him immediately, or if in a large quantity causes nausea. If this state continue all the symptoms increase in intensity, cramps are felt in the legs and feet, the pain is increased in the hypogastrium, the urine is entirely suppressed, the head-ache is increased, but there is seldom that stupor as in the other kinds of cholera. There is seldom much vomiting unless the stomach is oppressed by a large quantity of drink, and more commonly drinking increases the discharge from the bowels. Although the cramps would be very violent, the pulse did not sink as soon as in the other varieties, the stages were of longer duration, and the disease was seldom fatal.

CASE XI. Molly M'Clean, about four weeks after her previous attack mentioned above, Case X. was seized with a slight diarrhœa after eating a considerable quantity of fruit on the 27th of September. It became more profuse the next day in consequence of lying upon a wet floor that night. It continued through this day and the next

with so little distress, or diminution of strength, that she continued at her ordinary work, and could not be persuaded to use any remedy except one anodyne injection, which was administered on the 28th, and which had little effect. On the 30th, she was with difficulty persuaded to take a dose of ol. ricini, and then forty drops of tinct. opii, but without any benefit.

October 1st, 8 A. M.—The stools were very profuse, the urine was entirely suppressed. She complained of pain in the hypogastrium, and tenderness of the epigastrium, upon pressure, of cramps in her legs and feet, coldness in the lower extremities, thirst, and distress in the head. Her pulse was weak, her hands warm, and the skin without wrinkles. She took the following every hour:—Calomel, gr. v.; catechu, gr. iv.; pulv. Dov. gr. v. Injections were given of starch, laudanum, and solution of acetate of lead, a sinapism was applied to the abdomen, and hot bricks to her feet.

6 P. M. She complains of burning heat in the stomach, thirst, of nausea after the calomel, and roaring in her head. The discharge continues very profusely, and drinking appears to increase it, as she says it goes immediately through her. The cramps are very severe in her legs, feet, hands, and abdominal muscles. The calomel was discontinued through the night, cold water was given in small quantities for drink, frictions were made upon the extremities with spt. terebinth. In attempting to give an anodyne injection, the sphincter ani was found closely contracted with spasm.

2d, 6 A. M. Discharges from her bowels are very great, no urine, she complains of great burning in the epigastrium, and thirst, tenderness upon pressure, and roaring in the head, compares it to the roaring of the sea. The cramps are very severe in the extremities, in the muscles of the abdomen, back, and thorax. The extremities are warm, the pulse weak, the tongue moist, clammy, whitish, and warm, the veins of the conjunctivæ are red. Her voice is hoarse, so that she can scarcely be heard above a whisper. She was put in a warm bath, cups were applied to her temples, leeches to the epigastrium, ice was given internally, and no drink was allowed, mercurial ointment was rubbed upon her abdomen, sinapisms were applied to the spine and legs, and a blister to the epigastrium after the leeches had fallen off. The heat in the stomach was relieved by the ice, the distress in the head by the cups, and the cramps were not as frequent or as violent. The warm bath appeared to exhaust the patient, and was of no visible benefit.

1 P. M. The discharge continues involuntarily, running through

the bed very profusely, the cramps continue, the heat and burning have left the epigastrium. Calomel and kino in doses of five grains each are given every hour.

6 P. M. The calomel causes nausea, which brings on the distressing cramps in the muscles of the thorax, spine, and arms. The patient appears to have no power over the sphincter ani, as a watery fluid of no smell is constantly running from her through the bed, starch injections come away almost immediately. She is so weak as to be unable to rise. She complains of pain and distress in the hypogastrium, of some roaring in the head, but no stupor. The calomel is discontinued, the abdomen rubbed with mercurial ointment, the head cupped again, and a fresh blistering plaster applied, as the first had not drawn.

3d, 8 A. M. The discharge still continues from her bowels, the cuticle over the epigastrium being raised, it is removed and mercurial ointment applied. She feels great uneasiness in the lower part of the bowels. The cramps are less, but still continue in the legs and thorax. Fomentations were applied to the abdomen.

6 P. M. She is salivated. The discharge is less, but is passed involuntarily. She feels a fulness in the region of the bladder, but can pass no urine, cramps still continue. Nearly two pints of urine were drawn off by the catheter, which relieved her very much.

4th. She feels better, her mouth is quite sore, she has more command over the sphincter ani. She only feels cramps after drinking, the dysury continues, which is relieved by the catheter.

5th. The violent symptoms have all ceased, she has recovered the command over the sphincter ani. She is very much debilitated and emaciated. A diet of arrow-root restored her.

In this case it is astonishing to observe how great the discharges were, and how profusely they continued. The cramps were almost universal, affecting the muscles of both extremities of the spine, abdomen, and chest; even the sphincter ani was found closed by spasm. Nausea would almost invariably bring on the cramps, and this nausea was immediately produced by drink, except in very small quantities, by medicines, and especially by calomel.

CASE XII. Anthony —, after several days' diarrhoea, was attacked on the 4th of September with nausea, prostration, cramps in the extremities, skin moist and cold, feeble pulse, a profuse watery discharge from his bowels, noise in his head, and pain in the lower part of the abdomen. Forty drops of laudanum was given him in half a gill of brandy, mint tea and brandy were given in small quan-

tities for drink, mustard was applied to the abdomen, and spirit of turpentine to his spine and extremities.

5th.—The cramps have ceased, he feels better, pulse stronger, but still feeble, the extremities are warm, the discharge still continues, but less in quantity and yellow. The same drink is continued, and a little arrow-root allowed, as he feels some appetite.

6th. Convalescent. The discharge has ceased, very feeble.

CASE XIII. R. H. athletic, of sanguine temperament, aged forty-five, after a diarrhœa of four days, (from which he felt so little inconvenience as not to prevent him from working, and for which he could not be persuaded to take any thing,) was attacked with cramps in the night of the 17th of September, which ceased spontaneously before morning.

18th, 3 P. M.—He complains of head-ache, of pain and uneasiness in the lower part of the bowels, profuse evacuations of a watery fluid, thirst, and nausea upon drinking, spasms in the lower extremities, cold feet, feeble pulse, and clammy tongue. He took twenty grains of calomel, followed in two hours by an ounce of castor oil. This produced four abundant discharges of a dark-green colour, when he took one and a half grains of opium, which caused the discharge to cease and gave relief to all the violent symptoms.

The distinguishing marks or characteristics of these different varieties are these—

1. In the first, the burning heat in the stomach, the great desire for ice and cold drinks, the absence of the somnolence and profuse sweating of the second variety. Is it not probable, that this was the kind of cholera which chiefly prevailed at the Military Hospital of Val-de-Grace, as described by M. BROUSSAIS? The symptoms resemble those which he describes, and the treatment prescribed by him was successful here.

2. The second variety is known by the shortness or absence of the first stage of diarrhœa, by the shortness and violence of all the stages, by the vomiting, somnolence, the quick alteration of the features, and blueness of the skin. The symptoms of asphyxia are very manifest. The patient feels hot every where, but does complain of a particular heat or burning in his stomach. He generally prefers cold drink, but does not care for ice.

3. The third variety may be known by the stupor, numbness of the extremities, sluggishness of the pulse, and general tendency to apoplexy.

4. The fourth variety is a link between the second and fifth. The stages are not as short and violent as the second, there is not as much

vomiting, the evacuations are greater, and the patient is not so much prostrated immediately. The pain and distress are referred to the region of the umbilicus, and the patient often prefers warm drink.

5. In the fifth, the disease appears at first to have its seat in the lower part of the intestinal canal, there being a long stage of diarrhœa, and the discharge will be immense. There is not much vomiting, except when the stomach is oppressed by too much drink. The second stage is of longer duration, and even when the cramps are violent, there is not so soon that sinking of the pulse, the coldness and moisture of the extremities as in the other varieties. It is seldom fatal, except from neglect.

ART. IV. *Cases of Small-Pox, with fatal termination, observed at the Hôpital des Enfants Malades of Paris.* By W. W. GERHARD, M. D.

THE *Hôpital des Enfants Malades* of Paris is appropriated to the treatment of diseases of children between the ages of two and sixteen years. Infants are received at the Foundling Hospital, and patients who have attained the age of puberty are of course dispersed in the ordinary hospitals. As this is the only hospital into which children are admitted, it necessarily offers every variety of disease incident to childhood in the climate of Paris, and the patients are sufficiently numerous to present abundant examples of each disease, and furnish constant opportunities for comparing and verifying the peculiar symptoms and lesions which distinguish the affections of childhood from those of more advanced age. The hospital contains more than five hundred beds, which are divided into five services, four medical and one surgical; the medical services consist of a division of boys, and another of girls, affected with chronic diseases, such as scrofula, itch, and tinea capitis; and two divisions for those attacked with all acute diseases. The four physicians of the hospital are alternately upon duty in the services for acute and chronic diseases, and remain six months of the year in each division. The following observations were collected during the months of August, September, and October, (1832,) in the wards for acute diseases of the boys, then under the charge of M. JADELOT, and now of M. BOUNEAU, who kindly afforded me every facility for the study of the cases and the examinations after death.

I have selected small-pox as the subject of the present communication, because although the disease is now rare in America, it will probably never entirely cease, and I have preferred giving the cases which have terminated fatally, as the most perfect specimens of the disease—not as models of the system of treatment which would be preferred by an American physician. It would be difficult for us at home to collect so large a number of observations, as the disease is there rare, and autopsies made with some repugnance; the comparative rarity of these researches in America, will constitute their chief interest. The number of cases which I have yet collected, is not sufficient to ascertain the relative frequency of the lesions; these observations are merely intended to point out some of the causes of death, but not to establish laws which must be deduced from the comparison of a much greater number of facts. Few as they may appear, their number is sufficient to confirm truths which are already known, and perhaps to form part of more extensive researches. Much of the modern pathology is as yet of this negative utility, but we should always endeavour to ascertain with all practicable accuracy the basis of medical science, by studying carefully the natural history of disease, as the most probable means of perfecting the science of therapeutics. We have little or nothing to learn from the French practitioners relative to the treatment of disease; in energy and combination of therapeutic means they are indeed less advanced than the physicians of some other countries, but it must be recollected that the advances in modern pathology, which have distinguished diseases formerly confounded together, pointed out the curable affections, and furnished means of recognising the organic lesions which cannot be removed by any means we yet possess, have almost all been made at the school of Paris.

The difference between pathology and therapeutics is sometimes lost sight of both in France and America: the French physicians of greatest experience do not always remember that the great object of medicine is the removal of the diseased actions which they have discovered; and like the English practitioners, we do not attach sufficient importance to the discrimination of symptoms and lesions, which leaves a state of confusion in our practice, very evident in the writings of our physicians, and which impedes the definite employment of the remedies we already possess, and the investigation of others which may have some power over the multitude of incurable affections.

Observation I.—A child, aged seventeen months, was admitted into the wards St. Roch, the 17th of September. He had been treat-

ed in another ward for an impetigo confined to one of the cheeks; had been subject to diarrhœa for some weeks, and presented an eruption of variola two or three days before his admission.

Present state, September 17th.—Eruption of acuminate red points, some slightly transparent at their centre, discrete or collected in little groups of three or four upon the face, discrete and rare on the trunk and extremities; the eruption is without any marked difference in the form of the vesicles. The intermediate skin is injected, hot and rather dry. Anxiety and restlessness extreme. No examination of the fauces practicable, cough frequent, with a shrill sound like that heard in croup. Pulse 130, small and feeble. The chest sounds well on percussion. Respiration frequent, with mucous rhonchus in both sides of the chest.

Two leeches to the region of the larynx, and one to the epigastrium; blister to the upper part of the sternum; cataplasm to the chest.

18th. The pustules of the face are of a livid red tinge, generally semitransparent at their centre, the greater part of them are depressed, and some replaced by a brownish scab; those on the limbs are larger, and of the same livid tint. The epidermis does not exist on the greater part of the left cheek, in consequence of the separation of the crust of impetigo, and the denuded skin is marked with rounded red spots of the size of the pustules on the face, but not elevated. Tongue moist, whitish at the centre, rose-coloured at the edges, where some flattened pustules exist; the fauces are scarcely redder than usual, a few pustules were visible, but no false membrane could be detected in the slight examination which was made. Surface hot; pulse 180, feeble, but very quick. Respiration costal, attended with some dilatation of the nostrils at each inspiration, sixty per minute. Chest still sounds well, the respiration feeble on both sides, but *pure*;* cough with a more marked croupal character; the expiration is wheezing, and heard at the distance of several feet. Abdomen yielding, apparently without tenderness on pressure. Diarrhœa with several watery dejections daily. Gum linctus; infusion of violets; sinapisms to the legs; cataplasm to the chest.

19th. The pustules are shrunk, and are of a more livid tint. The intermediate skin is pale, but intensely hot and dry. Stupor almost amounting to coma. Cough not frequent, but always with the peculiar sound of croup. Aphonia; he attempts to cry when roused, but

* By *pure* respiration is meant the natural vesicular murmur without rhonchus, or important alteration.

produces no sound. Pulse very feeble and frequent, impossible to count it accurately. Respiration elevated, forty per minute. Tongue moist, reddish at the edges, covered with a thick, whitish coating. Thirst extreme. Diarrhoea rather less abundant. Sinapisms.

Death took place in the morning of the 20th.

Autopsy the 21st, twenty-seven hours after death.—Exterior. Ulcerations of considerable extent at the posterior parts of the thighs, and general lividity of the depending parts of the body; the violet tint of the pustules persists; greenish hue of the abdominal parietes; rachetic deformity of the thighs.

Neck.—The tonsils are tumefied, covered with a false membrane, and both of them ulcerated; the ulcers are each about the size of a grain of maize or a lintil, and are covered by a grayish coat nearly similar to the false membrane; the mucous membrane beneath the coating of lymph, as well as the ulcer, were of an intensely red colour; the anterior face of the epiglottis resembles in colour and in the yellowish coat covering it, the parts just described. The larynx, including the inferior face of the epiglottis and the aryteno-epiglottoid ligaments, present a uniform yellow coat more than a half a line in thickness; the membrane beneath it is pale, rugous, and very thin; but below the limits of this substance, it is red and thickened; the larynx held against the light presented at its upper part an oval aperture, the long diameter of which was about five or six lines, the light was not transmitted through it; the ventricles were entirely obliterated by the thickening of the parts.

Thorax.—The pericardium contained two tea-spoonfuls of lemon-coloured serosity. A fibrinous and rather firm coagulum was found in the right cavities of the heart; the lining membrane was of a light pink colour; the left cavities contained a blackish and fluid blood, but the lining membrane was of a lighter colour than that of the right side; the large vessels in general were of a light rose-colour, which became deeper after exposure to the air; the Eustachian valve still existed; consistence of heart normal. Pleuræ not adherent, containing each about an ounce of lemon-coloured serosity. Left lung; the upper lobe was of a light fawn colour anteriorly, and a little reddish posteriorly; it was every where crepitant, and contained some reddish serosity in the engorged part; the lower lobe was also crepitant, and of a fawn colour in its anterior third, but the rest of it was of a deep brown colour externally, heavy, containing no air; an incision presented a smooth and reddish surface, intermixed with grayish spots as if marbled, and not granulated; the vessels retained their white colour, and were seen ramifying through the substance; texture firm,

but rather brittle. Right lung every where crepitant, and of the usual fawn colour, excepting in the posterior part of the middle and lower lobes, where a portion of the lung was hepatized, in the form of roundish masses from three to six lines in diameter; no tubercles observed. Bronchia pale and not thickened. Bronchial glands normal.

Abdomen.—Stomach contracted, containing a little whitish mucus; the mucous membrane extremely pale, excepting a small part of the large curvature near its middle, where it was of a light onion-peel tint; no injection or mammillation, (mamelonnement,) observed; the strips yielded by the membrane are about four lines long in the large tuberosity, five to seven in the large curvature, and more than an inch in the small.* The duodenum is of a pale grayish colour, with a multitude of glands marked with a blackish central point. The small intestine contains only a little yellowish mucus in its whole length. The mucous membrane is generally pale, tinged in some parts by the contents, and marked with a few vascular ramifications

* It may be well to remind the reader that tearing strips from the membrane is the most correct means of appreciating the consistence of the mucous membranes. The intestine must be washed carefully, supported upon the index finger of the left hand in such a way as to render it tense, and then a sharp, quick blow should be given with the scalpel, but scraping rather than cutting the surface. In the small intestine the strips are then to be seized with the nails, and torn in a direction parallel with the valvulae conniventes; the edge of the strip first raised by the scalpel, but sufficiently long and broad to be readily seized by the nails, should be torn at as an acute angle to the surface of the intestine as possible. In the stomach the strips should be raised as nearly as possible parallel to its length, but it is comparatively easy, on account of the greater thickness of the mucous membrane in that organ than in the small intestine. The length of the strips in an adult are upon an average four or five lines in the great tuberosity of the stomach, six to eight in the great curvature, and an inch or more in the small. In the small intestine, from five to seven lines in the jejunum, and a line or two longer in the ileum. In the large intestine from one to two inches. These measures are about the average in the sound intestinal canal of an adult; in children after infancy the strips are very little shorter. If the mucous membrane be remarkably adherent, the strips may be a little less than usual, but in this case it is easy to perceive that they retain their firmness; if the cellular substance be a little infiltrated on the contrary, they are of rather more than the ordinary length. A little practice is necessary to detach these strips with facility, but after some experience it will be obvious that their length is dependent upon the degree of consistence of the membrane. This means of examining the mucous membrane, M. Louis correctly remarks, shows at once the natural or altered thickness of it, and distinguishes the redness depending upon injection of the membrane, from that which has its seat in the cellular tissue.

near its middle portion. The strips at the beginning are about four lines in length, longer but thinner towards the end of the ileum. Near thirty of the glands of Peyer were observed; they were generally grayish, with the dotted bluish aspect so often observed in their normal state; but a small number were reddish, rather more prominent than the rest, but not ulcerated. No glands of Brunner found. The large intestine contracted, containing a little pulpy yellowish matter adhering to the membrane. The cæcum was of a pale gray colour without vascular arborizations, but presented a multitude of isolated follicles, of rather deeper colour than the membrane, with the usual central point. The mucous membrane was of the same gray ground in the portion between the cæcum and the rectum, but interspersed with numerous red patches, formed by arborizations in the membrane itself; the rectum pale; no ulcerations found. The membrane was friable in the cæcum, of the natural thickness, but yielding strips of about four lines only; they were afterwards something longer, even in the reddest parts, but every where shorter than natural.

Liver.—Of a pale fawn colour; the two substances sufficiently distinct; giving a slight greasy coat to the scalpel. Gall-bladder containing a little liquid, of a light green colour. *Spleen* firm, of the ordinary bluish colour. *Kidneys*, cortical substance pale and slightly livid; the tubular portion of the usual appearance. *Bladder* not examined.

Brain.—No blood observed on the exterior of the dura mater; a fibrous coagulum found in the longitudinal sinus; a little limpid serosity in the great cavity of the arachnoid, and a considerable effusion of it beneath that membrane. Vessels of the pia mater not injected, about two drachms of transparent serum in each lateral ventricle; pia mater capable of being detached from the brain without tearing its substance. Substance of the brain rather flaccid, the medullary parts moderately dotted with blood. Cortical substance and corpora striata of their usual colour. Cerebellum and annular protuberance without appreciable lesion.

Remarks.—M. Louis has observed that about two-thirds of the deaths from variola in adults, occurring within the first week, are produced by the extension of the inflammation to the larynx; lymph is secreted and false membranes are formed, constituting a case of real consecutive croup. I am now engaged in examining this subject in children, but of course my cases are not yet sufficiently numerous to furnish any positive results as to the comparative frequency of this termination of small-pox. This case, with the two following, are instances of the kind in question; and the considerable proportion

they bear to the whole number, affords strong presumptive reasons for believing that inflammation of the larynx, with the formation of false membranes, is nearly as fatal in the small-pox of children, as in the same affection observed in the adult. The commencement of the disease, which occurred in a ward of ordinary cutaneous affections, was not accurately fixed; the croupal cough was already present when he was admitted into St. Roch, and there was reason for presuming that it had not existed more than from twelve to twenty-four hours previously. The treatment, with the exception of cutaneous revulsives, was decidedly antiphlogistic, and was about as active as the case admitted; for it must be recollected that three European leeches abstract about an ounce and a half of blood, and the child was too much enfeebled by previous disease, and a protracted residence in the hospital, to bear a much larger quantity. The diagnosis in this case was easy, and directly indicated by the peculiar character of the cough and cry; the increasing violence of the inflammation produced their complete suppression. The pneumonia was not clearly made known by the imperfect examination of the chest, which the feebleness and restlessness of the child permitted; percussion in children is extremely deceptive; a chest not unfrequently sounding well in which a considerable extent of the lungs is become impermeable to the air, and slight obscurity in the sound being sometimes found where no important lesion could be detected after death. The reason is *probably* the flexible state of the costal cartilages, which permit the chest to be modified by a slight change in the position of the child; and still more the thinness of the thoracic parietes, and the small size of the chest, which permit the sound to be conducted from the neighbouring parts of the lungs. The only other lesion of importance was the softening without redness of the mucous membrane of the large intestine; a pathological appearance extremely common amongst the children of this hospital, and connected with more or less severe diarrhœa. A singular appearance was produced by the imperfect eruption upon the surface formerly attacked by the impetigo, worthy of notice from its rarity.

Observation II.—A boy, nine years of age, was admitted into St. Roch, September 10th; he had been under treatment by baths and other external means in the same ward for cutaneous diseases, as the subject of the first observation. His disease appears to have been an extensive eruption of eczema impetiginodes. The only account of his case that could be obtained was, that the eruption had existed for three or four days; he had been affected with diarrhœa, but not as the sister of the ward stated, only previously to his present

disease. At his entrance the skin was generally covered with discrete, small vesicles, with a violet spot in the centre of most of them; they rarely exceeded half a line in diameter, and were of various size. The lips and nostrils were still covered with hardened blood, the remains of a hæmorrhage from these surfaces. The skin was hot, the respiration frequent and elevated, the pulse 106 per minute, extremely feeble. Prostration and stupor very marked, and preventing a more minute examination.

Blisters were applied to the legs, and a common infusion given as a beverage. Death took place the 11th, at 8 A. M.

Autopsy the 12th, twenty-eight hours after death.—Exterior. An ulceration existed on the left arm on its external part, about three inches long and nearly two wide; the characteristic scales of chronic eczema were very numerous on the head and arms. The skin was thickly covered with discrete shrunk pustules. Emaciation little advanced. The depending parts of the body of a general livid hue.

Neck.—The tonsils, pharynx, and surrounding parts are of an intensely red colour, and present patches of whitish false membranes. The base of the tongue offers some contracted pustules of the same appearance as those upon the skin. On the laryngeal face of the epiglottis and the lining membrane of the larynx above the ventricles, are about a dozen rounded elevations, the largest of the diameter of a sixteenth of an inch; they are whitish, contrasting by their colour with the reddish-gray tint of the surrounding membrane; slightly elevated, with a darker central point, formed by a pellicle detached from the mucous membrane, and resemble very closely the external pustules. The ventricles and vocal cords are a little red, without thickening or ulceration. On the anterior face of the larynx, about two lines below the ventricles and on both sides of the middle line, are three or four oval ulcerations, with a whitish base formed by the mucous membrane, imperfectly destroyed; the edges are scarcely elevated, and of the reddish-gray colour, which existed in the whole of the interior of the larynx. The ulcerations on the right side are a little larger than those on the other, and near the ulcers are some little elevations similar to those just described. In the upper parts of the trachea were two or three others, but the membrane was pale, and coated with a little mucus.

Thorax.—The pericardium contained a little serosity. A dark coloured coagulum was found in the right auricle, and a little clotted black blood in the left; both the ventricles were empty. The right side of the heart in general, and the left auricle were of a deep claret colour. The same colour existed, but in a much less degree, in the

left ventricle and the aorta, which contained little blood; it could be traced through the larger arteries, gradually diminishing in intensity. The veins and the pulmonary artery were of a much deeper colour than the aortic branches. Tissue of the heart of good consistence. A few old cellular adhesions were found in the right pleura; the left was without adhesions or serosity. Both lungs were light, crepitant, of the ordinary fawn colour externally, with a very slight engorgement at their base. Two or three tubercles were found in the right lung near the first division of the bronchia, one of them was partially softened and evacuated by a very small ulceration into the large bronchial tube to which it adhered.

Abdomen.—*Peritoneum* contained almost no serosity. The *stomach* was of ordinary dimensions, and contained a little brownish mucus. The mucous membrane was in general of a rose colour, and presented numerous red points, of a dull red colour, and apparently produced by little ecchymoses in the thickness of the membrane; these points were scattered throughout the whole stomach, but upon its faces they were especially numerous and collected in longitudinal bands parallel to the long diameter of the stomach. No mammillation of the mucous membrane found. The strips were from three to four lines long in the great tuberosity, five or six in the great curvature, and more than an inch in the small; they were of the usual thickness. The duodenum was thickly studded with follicles, most of which offered a blackish central point.

Small intestine.—The jejunum contained a yellowish matter like the broken, coagulated yolk of egg; in the ileum the contents were greenish-yellow and thinner. Two invaginations of an inch each in length were observed in the last third of the intestine, and a lumbricus about eight inches long in the midst of some yellowish mucus. The mucous membrane was pale, almost without arborizations. The strips were in general about five inches long, but in the last foot of the ileum they were much shorter, without any corresponding change in the colour or the thickness of the membrane. Some twenty glands of Peyer were observed, especially in the ileum, and those near its end were of a deeper gray colour than the others, dotted with an infinity of black points and a little prominent. Some isolated glands of Brunner, a few of which offered a dark central point, were also found in the ileum.

The *mesenteric glands* were of a slightly livid red colour, of the ordinary size and consistence.

Large intestine.—Not distended; containing a semi-fluid, brownish matter. A lumbricus was found in the cœcum. The mucous mem-

brane was in general pale, with some brownish stains from the contained matter, and a few scattered arborizations about the end of the transverse colon. The mucous follicles with a central point were scattered throughout the whole length and moderately numerous. The strips were more than an inch long in the cœcum and ascending colon, five or six lines in the reddish part, and still lower where the paleness of the membrane was rather of a duller hue than in the cœcum, about eight or ten lines.

The *liver* was of the ordinary size, of a peculiar cinereous colour, nearly homogeneous in its appearance, and so soft that it was impossible to make a smooth incision; containing almost no blood; both lobes were of similar aspect, but the left was rather firmer. The gall-bladder was small, containing a greenish liquid, but no arborizations. *Spleen* about two inches and a half long, bluish and firm. *Kidneys* pale; the two substances of nearly similar colour. *Bladder* distended, rising to the height of two inches above the pubes; interior not examined.

Brain.—A moderate quantity of blood was found externally to the dura mater. Longitudinal sinus containing a little fluid blood. No effusion in the great cavity of the arachnoid; a moderate quantity of serum below it, coloured a little by blood around the veins of the pia mater, which were moderately distended. Pia mater easily detached from the convolutions. Consistence of the brain good; the gray substance of its ordinary colour, and the medullary portion a little dotted with blood, especially towards the posterior part of the brain. Cerebellum and annular protuberance without appreciable lesion.

Remarks.—What was the cause of death in this case? It will not, I think, be attributed to the lesions of the larynx, which, although of a grave character, are frequently found to the same, or even a greater extent, without proving in themselves fatal. The symptoms observed in the slight examination practicable are not worthy of note, except for the negative sign afforded by the absence of croupal respiration or cough, and the presence of coma, and a livid tint of the pustules. I am inclined to consider the lesions of the larynx as one of the most simple forms of laryngitis, when it occurs as a complication of variola; death took place at a very early period of the disease, when it was still in its vesicular stage; and the lesions may be regarded as strictly elementary, and succeeding to the elevated spots in the larynx. Were these elevations pustules? I examined the piece with some attention, and at first I was tempted to regard them as the internal pustules of small-pox, which are often mentioned in the older writers; the close resemblance existing between them and the vesicles of un-

doubted character at the base of the tongue, rendered this opinion extremely probable, but it must be recollected, that the enlarged follicles of the laryngeal membrane might readily assume a similar appearance, and although laryngitis with false membrane formed by the coagulated lymph thrown out by this variety of inflammation, is the *most frequent* cause of death in the early period of small-pox, the existence of pustules on the mucous membranes is extremely rare, perhaps they have never been demonstrated in an unequivocal manner. M. Louis has never met with them, nor have they been observed at the *Enfans Malades* in the large number of autopsies made there of subjects dead of small-pox within the last few months. The abdominal viscera, excepting the large intestine, offered no important lesion, observing in this respect the ordinary laws of the pathology of children. In the autopsies I have collected at the *Enfans Malades*, which are now sufficiently numerous, I have rarely found important alterations in the stomach or small intestines, and have opened few subjects in which there was not some structural change of the large intestine; the very great majority of children at this hospital die of acute inflammation of the lungs or large intestine, and very few of cerebral affections. I cannot in this paper furnish the cyphers upon which this assertion is based, but to confirm the latter part of my remark, I will state that of twenty-two deaths which have taken place in the month that has just ended, (October,) one only was occasioned by a disease of the cerebral organs. Physicians who are not familiar with auscultation, or much accustomed to open the bodies of children, may possibly doubt the accuracy of this statement; inflammations of the lungs are indeed frequently confounded with cerebral affections; a mistake which may occur in their closing stage, where the stupor becomes very profound. The most common alteration of the large intestine is softening, with or without thinning of the mucous membrane, and rarely with vascular injection; this lesion is not peculiar to small-pox, but occurs frequently during the course of the ordinary diseases of children. Red injection, with softening and the formation of false membrane is far from unfrequent, a striking instance of which occurs in one of these cases; ulceration is comparatively rare.

Observation III.—A child, two years of age, in excellent health previously to the present disease, was admitted into St. Roch the 21st of August. The eruption had appeared two days before, and was accompanied by diarrhoea.

Present state, 21st.—Dentition considerably advanced; eyes blue; hair of light colour; face not cedematous, but covered with irregular reddish spots, prominent both to the sight and touch; the spots on the

forehead are flattened, paler, and not larger than pins' heads; upon the left temple they are nearly confluent. There were a few small, reddish and round pimples on the abdomen and chest, and some of the same colour, but less elevated on the anterior part of the thighs; they were less numerous on the legs, and extremely scattered on the arms and back. Skin of natural heat; pulse 112, regular, of no peculiar character. Countenance good, and respiration pure. Infusion of violets; syrup of gum; gum linctus.

22d. The eruption has assumed the character of papulæ; the countenance is still good, the respiration pure, the skin of natural temperature, the pulse 132. Diarrhœa moderate yesterday, ceasing entirely in the night; abdomen yielding, not painful upon pressure; thirst. Infusion of violets; gum linctus; diluted milk.

23d. Face swollen; eyes half-closed by the tumefaction of the eyelids; almost the whole face is covered with reddish, rounded papulæ, confluent in spots, some with a red areola, others without it. Very few exist upon the body, they are more numerous but not confluent upon the limbs, and most thickly scattered upon the back of the hands and thighs. He coughs a little, but the respiration is every where pure and strong. Temperature nearly natural, pulse 144. The diarrhœa has ceased. Infusion of violets; poultices of vinegar to the feet.

A little drowsiness was observed on the 24th, and the 25th the pustules of the face were of a dusky brownish colour, and flattened to the level of the skin, some even depressed below it. Respiration natural.

26th. The pustules of the face are nearly all replaced by large but superficial ulcerations of a light brown colour without scabs; superficial but perpendicular ulcerations of the same colour as the surrounding skin have succeeded to those on the thighs. The skin itself is pale. The pustules on the rest of the body are large, not contracted, and of a whitish opaline colour. The child makes incessant efforts to scratch himself, and is with difficulty prevented from destroying the pustules. Skin hot, but not very dry. Respiration nearly pure, a little sonorous and sibilant on the right side; but the dyspnœa is considerable, the respiration is about 40 in the minute; an abrupt inspiration is followed by a moment of repose, as if the patient were preparing for a violent effort; the expiration is hissing, heard at a distance, as the sound seems to proceed from the larynx, but pressure upon that region does not appear to cause him pain. No cries uttered by the infant. Pulse about 170 in the minute. No stupor; eyes natural; face not swollen. Agitation, but not much ap-

parent pain. Ordered four leeches to the region of the larynx immediately; blister to the chest; ipecacuanha, gr. x. in two doses; ptisan of violets; fumigations of ether.

Death took place at 4 P. M. The ipecacuanha had not been given.

Autopsy the 27th, nineteen hours after death.—Exterior. Moderate degree of embonpoint. The ulcerations scattered over the body are of a light brown colour. The pustules that remain are rather contracted. No rigidity observed.

Neck.—The hard and soft palate, pharynx and œsophagus, as far as the part opposite to the base of the larynx are covered by a yellowish, pultaceous false membrane, resembling concrète pus; after removing the false membrane by repeated washings, we observed an erosion at the upper part of the pharynx on each side, nearly as large as a quarter of a dollar, of the same aspect at its base as the adjoining false membrane, and not involving the whole thickness of the mucous membrane. A similar partial destruction of the mucous coat, and continuous with that just described, existed on a part of the soft palate, and also at the base of the tongue and epiglottis. The epiglottis is covered with the same kind of false membrane; its posterior face is without it, but of a brownish-red colour, and its lining membrane partially eroded. The interior of the larynx, as far as two or three lines below the inferior vocal cords, is covered by a false membrane of similar colour, but thinner than that found in the pharynx. The inferior vocal cords are yellowish, of the same aspect as the eroded surfaces; the lining membrane in general is of a deep red colour, and the arytenoid cartilages and neighbouring parts very rigid. The trachea is of a bright red colour, formed by numerous arborizations. No trace of pustules perceived. There were no pustules on the tongue, which was covered with a yellow and rather thick fur, some ulcerations were observed at its edges, of rounded form and very small.

Thorax.—The pericardium contains scarcely a drop of serum. The heart was firm, the right auricle contained a yellow fibrinous coagulum of the size of a filbert, the right ventricle contained but little blood; its thickness was two lines; that of the left ventricle was about four; valves sound. Both the pleuræ were without adhesions, and contained only a few drops of serum. The right lung was of a light rose colour in the upper lobe, and reddish in the lower. A few streaks of interlobular emphysema were seen in the upper lobe near its anterior edge. The posterior fourth of the upper lobe was of a brown hue, not crepitant, heavy, with a smooth incision, not granulated, firm, resembling a piece of flabby muscle; the rest of this lobe

was of a rose colour internally and crepitant. A part of the middle lobe resembled the hepatized part of the upper, but its anterior portion was crepitant. The lower lobe was hepatized in the greater part of its extent. A tuberculous mass as large as a pea was found in the fissure, which separates the upper from the middle lobe, and a bronchial ganglion of the same size was also tuberculous. The left lung presented a number of streaks of interlobular emphysema, the largest of which were about a line and a half wide, and an inch and a half long; some of the air-vesicles of the upper lobe are also manifestly dilated. The whole upper lobe is of a pale pink, very soft, crepitant, and similar colour internally. The lower lobe is of a violet colour, more heavy and less yielding; its anterior fourth is pink and crepitant, the rest of it is brownish, not crepitant, not granulated, firm, with a smooth incision, and resembling macerated muscle. Near the summit of the upper lobe and about a line from the pleura, there was a tubercle of the size of a buck-shot, not yet softened, in the midst of a perfectly sound tissue. Near the largest bronchial tube and outside the lung, there was a tuberculous bronchial gland, of the size of a filbert, not softened, and surrounded with a cyst. In several other ganglia not increased in size, there were little points of tuberculous matter in the midst of the tissue of the ganglion.

Abdomen.—The *stomach* was little larger than the colon. Mucous membrane of a grayish colour, much wrinkled, not mammillated. Its consistence was every where good, yielding strips of three or four lines in the great tuberosity, five or six on the faces, and more than an inch in the small curvature. Thickness natural.

The *small intestine* was of a grayish colour externally, a little tinged with yellow. It contained in its upper third a moderate quantity of yellowish and tolerably fluid matter, nothing but mucus in the middle third, and in the last a considerable quantity of yellow matter, especially abundant in the last two feet, and resembling fragments of coagulated yolk of egg. The mucous membrane is thin, coloured a little by its contents, and contains a tolerable number of isolated follicles scattered throughout, and several grayish glands of Peyer very little prominent, and only visible in the second half. In the last foot of the ileum there are a good many isolated follicles with a dark central point. The membrane is every where of pretty good consistence, yielding strips three or four lines long in its upper part, five to seven in the middle, and four towards the end. Thickness normal.

Large intestine.—A little distended in the transverse colon, containing in the cœcum a green, soft, fecal matter, almost nothing in

the rest of its length. The mucous membrane is grayish, with some scattered arborizations in the first six inches of the colon and in the cœcum, containing many crypts with the ordinary central point; strips only from three to five lines—in the rest of its extent it is equally soft and pale, except in the rectum, where it is a little reddish, and affords strips of two or three lines only.

Liver of a reddish fawn colour, containing a moderate quantity of blood—the two substances composing it very distinct. *Spleen* about three inches long, almost prismatic in its form; tissue firm—another smaller spleen unconnected with it, about the size of a filbert, was found a little below the former. *Kidneys* of ordinary colour and consistence. Cortical substance paler than that of the tubular portion. *Bladder* containing scarcely a tea-spoonful of urine.

Head.—No serosity found in the great cavity of the arachnoid, and but little below it. Veins of the pia mater moderately distended; this membrane can be easily detached from the convolutions. Brain is moist; the cortical substance grayish-pink; the medullary very little dotted with blood. The lateral ventricles contain less than a spoonful of serosity. Central portion as well as the rest of the brain of good consistence. Cerebellum, annular protuberance and medulla oblongata without appreciable lesion.

Remarks.—This case I witnessed in conjunction with my friend, M. MANNORI, of Geneva, who collected the observation and kindly permitted me to draw it up from his notes. The lesion of the larynx was certainly the cause of death from the thickening of its mucous membrane, the diminution in its diameter by the false membranes, and the secretion of mucus, which found an additional obstacle to the passage of air. The diagnosis was not difficult; the characteristic croupal respiration existed in a marked degree, and removed all obscurity which might have attended the secondary affection; little advantage, it is true, resulted from this discovery, as it was very soon followed by death. It is doubtful whether any modification could have been effected in the kind of inflammation which existed in this case to so violent a degree, but we should recollect that the frequency and rapidity of the affection oblige us to examine the state of the pharynx and tonsils with great care in all cases of small-pox, and if possible prevent the extension of the inflammation to the respiratory passages. Such examinations are practicable in adults, but in children are of course very difficult—but if it be possible to make the necessary inquiries to discover the seats of disease, a physician entrusted with the care of a patient, should forget both the obstacles he may meet, and the inconvenience which the patient may suffer, could he diminish the

mortality of disease by a happy interposition or his art, in a small proportion of the now fatal and irremediable affections. The lungs presented the usual appearance of pneumonia in children; when hepatization has not assumed the granulated appearance of pneumonia in the adult, the comparison of its tissue to that of the liver is sufficiently exact, but it must be recollected that the liver of children, not of adults, is to be regarded as the type of comparison. The lung is much firmer than in the hepatization of adults, presenting a smoother, more homogeneous surface on cutting into it; sometimes, but not always, sinking in water; of different colours, but varying from red or brownish-red to a lead or slate colour; generally resisting pressure, less than the crepitant parts of the lung, but sometimes hard, and crushed with difficulty by the fingers. In short, hepatization of the lungs in children, though not precisely similar, approaches more nearly the state of lamification produced by the compression of the lungs by a pleuritic effusion, than the real pneumonia of adults. The pneumonia was latent, as auscultation was nearly impracticable from the difficulty of making the child respire with sufficient force, and the loud bronchial and sibilant rhonchi. The great frequency of the respiration induced us to suspect pneumonia, although the great feebleness of the child necessarily rendered the diagnosis imperfect. The colon offered a softening of the mucous membrane, with very slight vascular injection; a form of disease very common amongst children.

Observation IV.—A child, two years and a half old, was admitted into the ward of St. Roch on the 10th of September. He had been previously treated in another ward for a cutaneous affection of the scalp, characterized by ill-defined, thick, brownish crusts, with no remains of the primitive lesion, and which seemed to have been an impetigo. The sister of the ward stated that he had been in good health previously to the commencement of the present affection. Nothing could be learned as to the precursory symptoms, excepting that the eruption had existed two or three days, and had been preceded by as many of prostration.

September 10th, present state.—Vesicles very numerous on the face, especially the cheeks, where they are nearly confluent; they are of various sizes, some appearing as red points, as large as a pin's head, a little prominent; and others of a dull white colour, with a brownish, depressed centre, surrounded by a narrow areola, and two or three lines in diameter, but they are in general vesicular, transparent, with a slight reddish tint, and of intermediate sizes. The pustules are very discrete; larger, but much less numerous on the trunk

and extremities. The little patient is much agitated and very feeble. Skin hot; pulse accelerated and small, but cannot be counted on account of the resistance of the child. Respiration irregular, between 20 and 30. Cough, but without the croupal sound. Eyes brilliant, a little injected, and weeping. The abdomen does not appear tender upon pressure. Diarrhœa; a few discharges daily. No more minute examination practicable; inf. altheæ; white linctus; infusion of violets; two leeches to the chest; sinapisms to the legs; vapour bath.

11th. The greater part of the pustules on the face have become contracted, and some are replaced by brownish crusts; upon the upper extremities they are pale, less contracted, and almost half of them present a brownish centre. Skin hot; agitation augmented. Pulse 120, feeble, and very small. Respiration elevated; the nostrils dilating at each inspiration, 44 per minute. A hastily performed percussion indicated dullness of the left side, with decided bronchial respiration, mingled with bronchial rhonchi. Mucous rhonchus on the right side, and less extensive bronchial respiration. Diarrhœa persists; discharges were not seen. Infusion of violets; white linctus; vinegar poultices to the feet; blister to the left side of the chest.

Aggravation of symptoms in the evening—and death on the 12th, at 8 A. M.

Autopsy 13th, twenty-seven hours after death.—External appearance. Much emaciation. Pustules contracted, of a slightly violet hue. A little lividity of the depending parts. No rigidity. Integuments of the abdomen of a greenish colour. Muscles of the usual colour, firm.

Pleuræ without adhesions or effusion. The *left lung* is of a reddish hue externally; becoming brown at its posterior part, especially in the lower lobe. The upper lobe is light, crepitant, red internally, and containing much reddish serosity. The anterior part of the lower lobe is similar to the upper; but the posterior portion is heavy, with a smooth, brownish incision, this colour only interrupted by the contrast of the whiter vessels; not granulated; containing no air, and resisting pressure. The *right lung* is similar in its external appearance to the left, but the livid portions are rather more extensive, and include the posterior part of the three lobes, which contain much reddish serosity, but are every where crepitant, with the exception of a few hepatized lobules at their posterior part, and most numerous in the lower lobe. The bronchia of both lungs are of a violet colour, containing little mucus; and in both lungs their colour is deepest in the inferior lobes. *Pericardium* contained a little reddish serum.

The heart was flaccid; a small coagulum was found in the right ventricle; auricle empty; a small quantity of blackish and not coagulated blood in the left cavities. The internal membrane of the heart was of a violet-red colour, deeper in the left than the right side. The same colour existed in the aorta and pulmonary artery.

Abdomen.—*Stomach* distended by gas, containing a moderate quantity of watery liquid, with a coating of adhesive mucus upon its internal surface. The mucous membrane is of a grayish colour in the large tuberosity, striped with rose-coloured, longitudinal bands, formed by a delicate punctuated colouring, five to ten lines in length, and about two broad. The rest of the mucous membrane was of a general pink tint, formed by fine arborizations mingled with fine points of red. The submucous tissue was pale. The strips were four or five lines long in the great tuberosity, about seven in the large curvature, and more than an inch in the small. The *duodenum* was tinged by the bile in some parts, the rest of it was of a grayish aspect, presenting few follicles or arborizations.

Small intestine of the usual size, containing a semi-fluid matter, alternately yellow and whitish. It presented near its middle three invaginations, of from one to two inches in length. The mucous membrane was very pale, without red vessels, tinged with yellow in the spots where a matter of that colour had existed. The strips varied in length from six lines to more than double that length. The glands of Peyer were scattered throughout its whole length, some of them recognised merely from their grayish colour, unequal surface and slight prominence; others were red and much more prominent; the follicles composing them enlarged with orifices very distinct and much more developed than in the ordinary state; the number of these red glands was about one-third that of the sound ones, they were placed in the midst of a pale mucous membrane, and with few exceptions, were confined to the upper third of the intestine; one or two of them presented small, rounded ulcerations, with red, elevated edges and a grayish centre; the ulcerations apparently occurring in the follicles of the glands, and not including the whole thickness of the mucous membrane. None of the isolated glands of Brunner were observed. Mesenteric glands pale gray, the largest about the size of a grain of maize.

Large intestine not distended, containing a small quantity of yellowish mucus. Mucous membrane in the cæcum and ascending colon pale, in the rest of the intestine it was of a livid red colour, formed chiefly by the arborizations, but with intervals of a paler hue; it was every where thin, although the intestine itself was apparently

thickened about the middle portion, an appearance produced by its contraction. The pale gray colour became again general near the anus. In the pale portions of the intestine, both in the cæcum and rectum, large patches of the membrane were extremely thin, almost destroyed, without a change of colour, and near the anus, especially in the last inch of the intestine there were a few small patches of yellowish false membrane, without surrounding redness. The follicles with their usual central points were every where numerous. The strips in the cæcum were only two or three lines in length, and were entirely wanting in the remainder of the intestine.

Liver of the bluish-brown colour, frequent in children; containing much liquid blood. Consistence firm. By some accident the contents of the gall-bladder were not noted. *Spleen* about an inch and a half long, of a deep blue colour; very firm. *Kidneys*. Tubular portion of a slightly violet colour, contrasting with the browner tint of the cortical part.

Neck, larynx, pharynx, and œsophagus pale, without ulcerations or pustules.

Head.—A slight effusion beneath the arachnoid, with some ecchymosis resulting from the vessels of the pia mater, which are a little engorged with blood. Cortical substance a little more violet than usual; medullary slightly punctuated with drops of blood on cutting it. Consistence rather flaccid. A tea-spoonful or two of limpid serosity in the ventricles. Cerebellum and other parts presented nothing remarkable.

Remarks.—The larynx was here perfectly normal; death was caused by the pneumonia, which was in this case recognised during life, and the inflammation of the large intestine. The glands of Peyer were red, tumefied, and one or two of them ulcerated; a rare form of lesions except in typhoid fevers or phthisis, to which M. Louis was induced to think it peculiar, from the frequency with which he observed this lesion in these affections, and its rarity, or rather absence in adults. In children the same law is not strictly true; affections of various nature occasionally giving rise to this appearance without the symptoms of typhoid fevers or tubercles—a fact amongst others demonstrating that the pathology of childhood offers some essential peculiarities.

Observation V.—A boy, two years of age, entered the ward of St. John the 15th of October. He had been treated at the hospital for a slight diarrhœa, which ceased in a few days, and he was removed by his parents on the 10th, after a perfect recovery of his health and gaiety. During his treatment at the hospital, he was, of course, in

common with all the children not vaccinated, exposed to the contagion of small-pox. No history was obtained of the symptoms preceding his admission.

Present condition, October 16th.—Hair light colour; eyes gray; form developed for his age. No marks of scrofula. Eyes nearly natural, excepting some spasmodic contractions of the eyelids and pupils. Mouth slightly drawn to the left side, with spasmodic movements of the lower lip. Great agitation. Respiration elevated, 40 per minute, without movements of the nostrils. Pulse 165, very ~~small~~ and quick, but regular; heat of skin; thirst; tongue moist, rose at the edges, whitish generally, with prominent red papillæ. He applies his hands constantly to the abdomen, and seems to suffer pain when a pressure is made upon it. One or two dejections since his entrance; cough frequent and loose; respiration appeared forcible and pure, in ausculting the chest hastily.

17th. Face less injected, but a little swollen. Eruption on the forehead, cheeks and chin of very discrete red and equal papulæ; they are in general about the sixteenth of an inch in diameter, and those on the lips contain already a little transparent serosity, and are evidently depressed at the centre; they are generally of a light rose colour, and surrounded with a very faint areola. A few scattered pimples exist on the legs and arms, and extremely few on the abdomen or chest. Much prostration, but intelligence and senses evidently perfect. He talks and asks for food. Slight spasmodic movements of the muscles surrounding the mouth in both sides; and when he speaks there is a little deviation towards the left side. No strabismus or insensibility, but incessant contractions of the eyelids and pupils. Sensibility and movement natural; heat a little elevated; voice natural; cough slight. Pulse regular and rather small, (124.) Respiration rather elevated, without dilatation of the nostrils, 32; *pure*, except a little mucous rhonchus on the left side. Tongue thickened, smooth, and red at the edges, whitish, with red, elevated papillæ at the centre. Abdomen yielding; pressure excites uneasiness. Gum water; diet.

18th. Papulæ on the face larger and more irregular; heat of surface increased. Pulse regular, 130. Abdomen appears tender; no diarrhœa; thirst and prostration augmented; mucous rhonchus in both sides of the chest. Same prescription.

19th. Eruption has become nearly confluent on the right temple, but remains perfectly discrete on the rest of the face. It has assumed the vesicular form; the larger vesicles depressed at the centre.

Skin in general pale, rather warm. Cessation of the spasmodic contractions of the face; vesicles on the arms larger than on the face, depressed; gaiety increased rather than diminished. Pulse regular, 92; respiration not changed; appetite. Gum water; poultice of vinegar to feet.

20th. Progress of the eruption regular; intermediate skin rather more coloured; stupor; eyes injected, secretion of tears abundant; heat little augmented; pulse small, 145; respiration equal, 24; redness and pustules observed on the palate and fauces; tongue smooth, red, and dry at the edges, where there are numerous pustules. Gum water; cataplasms to feet and abdomen; diet.

21st. No dejections; vesicles whitish, slightly tinged with pink, and some of them yellowish; redness of the conjunctivæ, with a mixed secretion of tears and mucus; tongue red and dry; heat moderate; pulse regular, small, 144; cough loose, rather frequent; auscultation impracticable. Gum water; gum julep; cataplasms to abdomen and feet; diet.

22d, 23d. Forehead covered with an extensive ulceration, formed by the child's scratching the pustules; they are, however, entire in the rest of the face, rather flattened and yellowish; face red and swollen; pulse 124; respiration not much impeded, 34; voice natural; tongue red, but moist. In the evening the pulse had increased to 144; I was able to auscult him, and found a crepitant rhonchus on the right side of the chest. Gum water; white linctus; diet.

24th. Face very red and swollen; forehead, nose, and lips covered with thin, brownish crusts; eyelids much swollen; pustules remaining on the face in general yellowish; those on the body and extremities are of a whitish colour, and many of them have sunk into a cup-like form; skin hot and coloured, exhaling a viscous perspiration of a disagreeable odour; pulse small, feeble, but regular, 125; respiration elevated, but irregular, 36; no diarrhœa.

25th. Two liquid dejections; incessant moans during the night; stupor profound; pulse 116; respiration elevated, 36; the air evidently enters with difficulty the nostrils, obstructed by the thick crusts about the lips; redness of the conjunctivæ, but cessation of the secretion. Gum water; gum linctus; cataplasm to abdomen; $\frac{1}{4}$ injection of starch; diet.

26th. At least three or four green liquid stools; some of the remaining pustules on the face have become a little brownish at their centre; skin hot; respiration as yesterday, heard at a distance; a full inspiration is succeeded by a moment of repose, which precedes the

expiration; lips swollen and dry, with some crusts on their edges; extreme agitation; he throws his arms in the air, and seems to be delirious; cry or voice not heard. Same treatment.

Death the 27th, soon after the visit.

Autopsy the 29th, forty-six hours after death.—Exterior appearance. Extensive ulcerations upon the face and thighs; pustules remain entire, perhaps a little contracted in the other parts of the body. Posterior parts of the body and thighs very livid. No emaciation, or appearance of decomposition.

Abdomen.—Stomach much contracted, containing only some viscid mucus which agglutinates the parietes to each other; rugæ very numerous. Mucous membrane in general of a delicate onion-peel colour, shaded with a bright punctuated redness, especially developed upon the rugæ; the thickness of this coat is normal, its consistence good, yielding strips of three to four lines in the great cul-de-sac, seven or eight in the faces, and more than an inch in the small curvature. The submucous tissue pale; no mammillation. *Duodenum* pale, containing some crypts. *Small intestine*, distended in its first half by a greenish liquid of variable consistence; contracted in its second half, where it contains some yellowish mucous matter. The mucous coat in some parts partakes of the colour of the contained matter, but in general it is extremely pale, without any bright arborizations. The membrane is thicker in its upper half, where it yields strips at least six or seven lines in length; towards the end of the ileum the strips are perhaps a line longer. A few isolated glands, of a dull white colour, without a central point, were observed in the ileum, but no glands of Peyer were visible upon a careful examination of the intestine. *Mesenteric glands* not tuberculous, the largest three or four lines long; reddish-gray, but firm. *Large intestine* of nearly natural dimensions in the cæcum, but much contracted afterwards, containing a little whitish mucus. Cæcum pale slate colour, with numerous follicles, and few red vessels; the mucous membrane soft, yielding strips of only four lines; in the ascending and transverse colon, there was more vascular injection, greater development of the follicles, and strips a little shorter than in the cæcum. About the end of the transverse colon the mucous membrane becomes much redder, evidently thickened, with scattered points of yellowish, friable, false membranes. The deposition of lymph a little lower exists under the form of patches of some extent, and finally covers almost the whole breadth of the intestine, leaving a few intervals of red, softened, and thickened mucous membrane. No worms or invaginations found in the intestine. Liver of a dull, brick-red colour; the two substances

distinct, containing but a moderate quantity of blood, firm; Gall-bladder containing a greenish bile. Spleen bluish and firm. Kidneys rather pale, but firm. Bladder healthy.

Thorax.—Pericardium containing about two drachms of lemon serosity. The right cavities of the heart contain a little liquid blood; much liquid blood with a small coagulum in the left. Tissue of the heart firm; the right ventricle about an eighth of an inch thick, the left a little more than twice those dimensions; internal surface pale. Pleuræ without adhesions; less than half a spoonful of serosity in each. *Right lung* reddish, flesh colour in its upper lobe, brownish posteriorly, offering some streaks of interlobular emphysema in several points, about a fourth of a line wide, and of various length; several lobules were prominent, formed by air-vesicles evidently dilated; but as a similar appearance was produced in other points by compressing the lung, the cause of this appearance is doubtful. A few lobules in this lobe were indurated, of the usual appearance; little engorgement of the posterior parts. Lower lobes differ little from the upper; equally crepitant. *Left lung* offers rather more of the interlobular emphysema than the right; crepitant generally, but cartilaged in a part of its lower lobe. Bronchia a little red, but not thickened; bronchial glands of varying size up to that of a kidney-bean; a little reddish, but firm; no tubercles observed.

Neck.—Larynx pale, not ulcerated. Pharynx and œsophagus pale, without false membranes or ulceration.

Head.—A little liquid blood with a small fibrinous coagulum in the longitudinal sinus; considerable effusion beneath the arachnoid, and about two tea-spoonfuls of serosity in each ventricle; medullary substance a little punctuated with blood; cortical of the usual rose colour; pia mater not much injected, easily detached from the surface; cerebellum and annular protuberance firm, like the cerebrum.

Remarks.—This case is remarkable for the extent in which the deposition of false membrane existed, lining the whole breadth of the rectum in a length of several inches; its position upon the mucous membrane was variable, sometimes thrown into rugæ, at others in the form of smooth, tolerably adherent patches of a dull white colour, contrasting strongly with the bright red, inflamed membrane. The piece was one of the most remarkable I have seen; a friend had the kindness to make a drawing of it, which is now in my possession. The diarrhœa preceding death was of short duration, if the report of the attendants be exact, and there were no peculiar reasons for doubt in this instance.

Observation VI.—A boy, four years old, was admitted into the

ward St. Roch, September 10th. Since the 20th of August he has been in the ward St. Louis, but with no other disease than occasional diarrhœa and a feeble rachitic constitution. Two or three days before admission the sister of his ward perceived an eruption of red points, rather numerous, preceded and accompanied by cough and diarrhœa, but no vomiting.

Present condition, Sept. 10th.—Transparent vesicles slightly rose-coloured, are scattered over the face, and most abundant on the nose and right cheek; the largest are about a line in diameter, depressed at the centre, and surrounded with a slight areola; vesicles of similar appearance, but rather larger and less numerous, exist on the rest of the skin; eyes are brilliant, secretion of tears abundant; pulse 124, quick and small; respiration 24; cough slight; skin warm, but moist; appetite; tongue natural and moist.

11th. Vesicles more numerous and larger; pulse 116, quick; respiration 24, pure, except a little sibilant rhonchus.

12th. Eruption irregularly confluent on the nose, which is very red and swollen; yellowish scabs of irregular form replace the pustules about the lips, those remaining are of a dull white colour; the largest have a brownish central point; pustules very numerous upon the right tarsal cartilages; eyes injected and brilliant; skin moist; pulse rather full, 128; respiration 32, with a little mucous rhonchus; tongue moist and whitish; no pustules upon it or in the interior part of the mouth; cough slight; diarrhœa. Infusion of violets; gum linctus; poultice to the chest.

13th. Three leeches applied to the abdomen; diarrhœa persisting; pulse 154.

14th. The crusts upon the lips are much thicker, more irregular, of the colour of concrete honey; the pustules on the rest of the face are full, rounded, from a fourth of a line to two lines in diameter, generally of a uniform cream-colour, but the largest are a little brownish at their centre; intermediate skin injected; pustules larger on the extremities, but white, and surrounded with a very narrow areola; pulse regular, 116 per minute; stupor; one or two liquid dejections daily. Infusion of violets; gum julep; poultices of vinegar to the feet, diluted milk.

16th. Scabs on the nose and chin, as well as the lips, more yellow and drier, like the efflorescence of certain minerals; the pustules on the cheeks are still full, in general brownish at their centre, not increased in size; a well-defined areola surrounds them, and the skin in general is rosy; on the extremities full, rounded pustules of the dull white colour; pulse more indulating, 136; respiration pure; diarrhœa has

ceased; tongue clean. Infusion of violets; gum julep; injection of poppies; milk.

18th. Brownish crusts replace those pustules still visible on the 16th; temperature continues a little elevated; pulse 132, quick; tongue moist, a little whitish at the centre, without redness; cough slight; no discharges since the day before yesterday; abdomen yielding, not tender; respiration 28, with a little mucous rhonchus; percussion continues sonorous. Mucilaginous decoction; poultice with laudanum to the abdomen.

19th, 20th. Pulse fallen to 116 and 92; scabs about the ~~pustules~~ extremely thick, obstructing the respiration and requiring their mechanical removal; skin still hot and injected; scabs of the extremities are in part detached; tongue whitish and pale; cough rather frequent but loose. Infusion of mallows; gum linctus; milk.

After the 20th, the pulse became more frequent, varying from 120 to 130; diarrhœa renewed, not exceeding three or four stools daily; cough continued; auscultation performed with difficulty, indicated nothing but a little mucous rhonchus.

27th. No diarrhœa; he still coughs, perhaps rather more frequently; blister to the left side of the chest. Infusion of violets; gum julep; fomentations of camphor to the abdomen.

In the evening there were some convulsive movements of the eyelids, and to my surprise death took place.

Autopsy, September 28th, fourteen hours after death.—*External appearance.*—Emaciation moderate; no cadaveric rigidity or livid aspect; thick brownish scabs covering the head; a few crusts of variola upon the face, but the places of the pustules on the rest of the body are marked by a rose colour of the skin; muscles pale; internal organs still warm.

Abdomen.—*Stomach* contracted; the mucous membrane in general colour of dried onion-peel; this colour exists throughout the small curvature and the posterior face, shaded a little by delicate spots formed by a fine punctuated redness; on the anterior face, and in the large cul-de-sac, the onion-peel ground was deeper, and presented intense redness in the form of longitudinal bands and patches of various dimensions; the redness was formed by fine arborizations and minute points; no appearance of mammillation observed; thickness and consistence normal; the strips three or four lines in the large tuberosity, six to seven in the large curvature, and more than an inch in the small. *Duodenum* of a yellowish colour, with few follicles. *Small intestine* contains a yellow-greenish matter, becoming thicker in approaching the end of the ileum; five or six lumbrici in the jejunum;

the mucous membrane in the first half was grayish, a little tinged with yellow, and presented numerous red vessels, uniting in fine arborizations, and forming patches of the length of a few lines to that of two or three inches; some limited portions of the membrane also offered a number of ecchymoses of a deep red colour; after the first half of the intestine the redness gradually diminished, and in the last fourth it was pale; strips on the upper part were from five to seven lines, even in the reddest part; towards the end of the ileum the membrane was thinner and yielded strips of its whole breadth; the adhesion of the submucous tissue was every where slight; none of the isolated glands of Brunner observed; the glands of Peyer were about thirty in number; those first observed were near the middle of the intestine, and of a deep red colour; afterwards some were dark gray and others red and elevated; the glands found in the last feet of the intestine, where no colouring of the mucous membrane existed, were grayish, dotted with blue, (in short of their normal aspect,) except in the last two or three feet, where a mass of glands, nearly confluent, was of an obscure red, and much more thickened than the others; mesenteric ganglia were firm, the largest the size of a large pea, and of a dull white colour, not tuberculous; the others pale. *Large intestine* contracted, containing a yellow-whitish liquid matter; membrane in the cæcum grayish, with some follicles; depressed in the centre, not much developed; ascending and transverse colon much contracted; the mucous coat of the same gray ground, presents numerous arborizations and patches of punctuated redness; the follicles are larger in this part but not ulcerated; rectum pale; strips two or three lines long in the cæcum, none afterwards, and besides so soft that the slightest scraping of the surface detaches the membrane. *Liver* violet-brown, very firm, containing very little liquid blood; the two substances distinct. *Gall-bladder* contains a little dark green bile. *Spleen* firm, bluish, of the usual proportions. *Kidneys* a little violet, especially the cortical part. *Bladder* distended, mucous membrane not injected.

Thorax.—*Pericardium* containing about two tea-spoonfuls of lemon serosity. *Heart* rather flaccid, parietes pale, of ordinary thickness. The right cavities contain a very small fibrinous coagulum, the left nearly empty; internal membrane pale; aorta and pulmonary artery very white. *Pleura* not adherent, without effusion. *Left lung* very light, every where crepitant, and grayish except on the posterior part where there are two or three red patches; the redness existed in a very small part of the interior, which was in general pale. *Right*

lung similar in appearance; both lungs in short the type of the normal state.

Neck.—*Larynx* pale gray; the mucous membrane of the epiglottis and in general of the larynx not ulcerated, except the inferior vocal cords which present ulcerations extending the whole length, especially marked on the left side where the mucous membrane is entirely destroyed in a point.

Cranium.—Exterior of the dura mater free from blood; a moderate serous effusion beneath the arachnoid; ventricles contain about an ounce of serosity; cerebrum and its appendices of good consistence; cortical substance very pale red; medullary with points of blood.

Remarks.—Death took place on the twentieth day of the eruption, rather from the sequelæ of variola than the disease itself. The eruption was discrete, and went through its stages with great regularity; the child suffering apparently little, notwithstanding the feebleness of his constitution. A curious feature in this case is the existence of slight ulcerations in the larynx, without the formation of pus or presence of false membranes; still a sufficient lesion to produce and maintain a continual cough, which was not explicable by the state of the lungs. The patient was frequently examined with the stethoscope, and the respiration was either perfectly pure or mingled with very slight mucous rhonchus. The laryngitis, it is more than probable, existed throughout the disease, and is the more remarkable, as death from another cause revealed to us the slight forms of a secondary affection extremely frequent in small-pox, perhaps as often existing in children as in adults, but difficult to establish by direct comparison, because affections of other organs than the larynx more frequently destroy life in the early ages of childhood before the laryngitis reaches its extreme severity. Without inquiring into the original form of these ulcerations, or the primitive lesions of the larynx, it may be remarked that the lungs were unusually sound, presenting nothing morbid but a very limited engorgement at their base; and contrasting with the inflamed lungs found in the large majority of the children examined at this hospital. Passing to the study of the abdominal viscera, and commencing by the most diseased, we may be surprised at the gravity of the lesions observed in the colon, lesions which were probably of long continuance, for although a diarrhœa of a very few days continuance sometimes coincides with great structural disease of the large intestine; in this instance the diarrhœa, although never abundant, had existed during the whole course of the disease, and even preceded its appearance. The mucous membrane, it will be observed, was ex-

tre mely soft in the cœcum, and in the rest of the intestine absolutely disorganized. Although it seems to me at least doubtful if all the alterations of the large intestines in children result from inflammation, and the question is rendered difficult of solution in many cases from the absence of redness which is regarded as the most certain character of inflammatory action by the majority of pathologists, in the present observation we have a sufficient number of distinctive characters. The slate colour of the cœcum, a frequent if not constant effect of *chronic* inflammation, was replaced by a bright punctuated redness, accompanied by entire disorganization of the mucous structure; descending still lower, we find the rectum pale but the mucous coat is equally soft; must we here suppose another kind of action from that existing in the red and contiguous parts, or what seems to me more logical, admit the existence of the same morbid action in the portions which retain and those that have lost the usual colouring? The extent and intensity of the inflammation are also worthy of notice. The mucous membrane of the *small intestine* offered an extensive redness in the jejunum, the character of which is more doubtful as the consistence of the membrane was not altered, nor was the redness of that punctuated unequivocal aspect which *probably* at least may be regarded as proof of inflammation. Leaving then a question which is at present insoluble, we should notice the state of the glands of Peyer. The reader may recollect that these glands are peculiar to the small intestine, and consist of *collections* of follicles, found on the mucous membrane on the part opposite to the mesentery, most numerous towards the end of the ileum, and distinguishable from the surrounding mucous membrane by their grayish colour; sometimes covered with little bluish or blackish dots corresponding to the orifices of the follicles which compose them; or of an areolar appearance more or less distinctly marked, and very slightly elevated above the level of the mucous membrane. In the last two or three inches of the ileum, especially besides the distinct agglomerations of follicles, many smaller collections of two, three, or more follicles exist; and near the valve these glands are usually found upon the whole circumference of the intestine, instead of being confined to the part opposite to the mesentery. The glands of Peyer differ in children from the same organs in the adult in an important pathological phenomenon; in the adult the inflammation of these glands, in *acute* diseases, is peculiar to typhoid fevers, and constitutes the anatomical character of these diseases, (we mean as existing at Paris;) in children it is seen that these glands may be evidently diseased in affections of a different character, and in no way analogous to typhoid affections.

This is an important pathological fact, and proves the necessity of studying disease in all ages of life, under a thousand different circumstances, and in various countries before we can generalize without finding a multitude of exceptions to what we had regarded as the general truths of medicine. While speaking of the intestinal glands, I will take the liberty of calling the attention of physicians to the other varieties found in the intestinal character, for I am convinced that they are not always inspected with sufficient care in the autopsies made in America. The glands of Brunner, or isolated follicles, are in the natural state little apparent, but in disease they ~~are~~ sometimes greatly developed, prominent, rounded, contrasting by their dull white colour with the grayish hue of the mucous membrane. In cholera we very frequently found them greatly increased in size; sometimes these glands have a central point or orifice, but usually none can be detected, at least with the unassisted eye. They are scattered throughout the small intestine; in the duodenum these follicles are particularly numerous, but in this position their aspect does not seem entirely similar to that observed near the end of the small intestine. Frequent allusion is made in these cases to the isolated follicles or cryptæ of the large intestine; these are invisible or nearly so in health, but in disease they are seen as rounded bodies beneath the mucous membrane with which they are connected, and remaining attached to the cellular coat when the mucous lining is removed; these glands always present a central point, and differ in several particulars from the isolated follicles of the small intestine. Anatomical details are of course foreign to the subject.

Observation VII.—Porcher, æt. 12, admitted September the 24th. Has no trade, is very robust, florid complexion, light hair; not affected with scrofula. Had a chill on the 20th, about 3 o'clock in the afternoon, which lasted about an hour, and was not preceded by any known cause; the chill was accompanied by head-ache, and followed by fever and anorexia. On the 21st, the anorexia was complete; he vomited his drinks; fever continued, with pain in the limbs and head. Since that time he has had fever and loss of appetite, but neither vomiting, dejections, or cough.

25th, *Present state.*—Intelligence very limited; senses perfect; cephalalgic, intense and general; eyes natural, but rather brilliant. Eruption very rare on the face, more numerous on the hands, fore-arms and arms; rare on the rest of the body, consisting of discrete, reddish pimples, rather acuminate, some of them vesicular at the vertex, without pain or itching, the patient unconscious of their presence; great agitation; heat elevated and dry; pulse 108,

full and strong; respiration rather elevated, 28; no cough; tongue red at the edges, irregularly coated; abdomen generally very sensible to pressure; thirst; appetite returning; constipation. Infusion of violets; barley water acidulated; milk.

On the 27th the eruption had become abundant on the face, but discrete, vesicular and reddish; the largest vesicles the size of a grain of millet. The pulse was still 100; constipation. Same prescription.

28th. Intense pain in the throat occurred in the night, producing frequent cough, but not well-defined expiration; the pain at the throat arresting the attempt to cough; sleep interrupted; no head-ache during the night, but fever and perspiration. Vesicles a little reddish, the largest about a line and a half in diameter, depressed, very numerous on the face, especially the cheeks, where they are nearly confluent; on the extremities they are depressed, rather larger than on the face, but less numerous. Agitation, but no cephalalgia; senses perfect; tongue very red and swollen on the edges, where exist numerous whitish and depressed vesicles; fauces very red and swollen, with numerous pustules, several of which are confluent upon the pharynx, and resemble closely a patch of false membrane; voice very hoarse, rather shrill; pulse full, regular, 112; respiration natural, 24, pure, except a trace of mucous rhonchus on the left side; no expectoration; abdomen of natural form, very tender at the epigastrium; skin hot; constipation. Six leeches to each side of the throat; lemonade; sinapisms to the legs; hot drinks at night.

29th. Face swollen and red, especially about the eyelids; pustules are however less numerous there than on other parts of the face; the right eye entirely closed by the tumefaction, the patient cannot separate the eyelids, which present some pustules on their conjunctival surface; conjunctivæ injected in both eyes, which are very painful on exposure to the light. Pain at the larynx continues, and is increased by deglutition of liquids; voice still hoarse; pulse regular, full, 128; respiration 28, regular. Eight leeches to the throat; lemonade; infusion of violets; sinapisms to legs; a biscuit allowed.

30th. Pustules are full, round and yellowish on the face, less distended on the limbs; skin in general nearly of its natural colour; eyes not changed; less pain at the throat, voice rather more natural; perspiration at night; constipation; thirst, but appetite retained; pulse regular, 124. Lemonade; barley water; broth and biscuit; gargle of honey and vinegar.

Oct. 2d.—Pustules destroyed on the face, apparently by the nails, and replaced by brownish scabs; still yellowish-white and well-filled

on the limbs, a little violet on the thighs; skin slightly coloured; tongue rather red at the edges, covered with a whitish coat at the centre; pulse 112, regular, full; less thirst; appetite; no cough; voice natural; constipation. Lemonade diet; enema of mucilage.

3d. Dejection after the enema; pains in the limbs, especially the shoulders, not referred to a distinct part, says that he is subject to them. Pustules remaining, are now very few, but retain this appearance. Pulse 124, same character. Gum potion with acet. ammoniæ, ʒij.; sinapisms to legs.

Injection of the face and somnolency on the 4th, although the pulse had fallen to 112. Pain continues in the shoulders.

5th. Intense fever in the night, followed by perspiration; drowsiness, but not cephalalgia; much depression; face not more injected than yesterday; scabs in general not detached; no pustules remaining, except a few large ones on the feet; heat little elevated; pain in both shoulders and in the right elbow very intense; the elbow is swollen, giving a doughy sensation to the touch without redness; no swelling could be detected in the shoulders; slight subsultus tendinum at the wrist; tongue moist, whitish at the centre, rather red at the edges, where some rounded ulcerations are observed; abdomen not distended, still a little tender; no dejections; pulse 100, regular, full; no cough; no dejections. Inf. altheæ; gum potion with muriatic acid; six leeches near the umbilicus; enema; cataplasms to painful parts.

7th. Perhaps rather more prostrated, but still intelligence perfect. One dejection on the 6th. Distinct fluctuation and swelling, without redness of the articulation of the first phalanx of the left thumb with the metatarsus. Pain and swelling of the right elbow and left shoulder, without fluctuation in either; he complains of no other pains; pulse 112. Inf. altheæ; gum potion with syrup of poppies, ʒij.; poultices to abdomen and the seats of pain; chicken water.

From the 7th to the 14th.—The constipation persisted; emaciation advanced, the face assuming a cadaveric aspect, cheeks hollow, and nose sharp and contracted. The pain of his abscesses seemed less severe, although others had formed at the right heel and in the hip, that in the thumb was opened and gave issue to a thick white pus; the cavity of the joint was evidently exposed, and the ligaments appeared destroyed. The pulse varied from 110 to 130, becoming rather more frequent within the last two or three days. The treatment consisted in emollients with slight narcotics; intelligence always perfect. On the 14th one or two liquid discharges; the diarrhoea became gradually more profuse; the tongue redder and dry at the centre; pulse 104;

feebleness very great; heat elevated. The dose of the opium was increased, a pill containing a sixth of a grain, with an ounce of the syrup of poppies was administered daily.

18th. Very frequent yellowish stools with some whitish flocculi; face still more cadaveric; voice hollow; pulse feeble, 120; tongue red and dry, but not coated. Gum water; potion of gum with \mathfrak{Oj} . laudanum daily.

Pains in the abdomen became very severe on the 19th. On the 20th pulse 150, almost filiform; discharges extremely frequent, involuntary; cough not very frequent, dry and hacking. Takes his broth with pleasure. Cephalalgia and pain in the abdomen; intelligence preserved.

Death took place the 21st, soon after the visit.

Autopsy the 22d, twenty-two hours after death.—*External appearance.* Great emaciation; a few scabs of small-pox still remain on the back; a brownish eschar covers a great part of the sacrum; very little lividity of the posterior parts; the left claviculo-acromial articulation is filled with pus, the ligaments entirely destroyed, and the pus infiltrated into the surrounding cellular tissue; shoulder-joint sound; the sterno-clavicular articulation of the same side is also disorganized by thick, white pus; the ligaments and synovial membrane destroyed. Behind the right olecranon there was a soft tumour extending two or three inches along the posterior part of the arm; on incising the tumour, instead of pus, a large black coagulum of blood presented itself at the opening; prolonging the incision along the internal face of the triceps, about three or four fluid ounces of dark blood, mixed with a brownish putrilage, possessing little odour, were found in contact with the fibres of the triceps. The internal border of the triceps muscles was slightly eroded by this matter, giving it a rough, irregular appearance; the fluid extended from thence around the inner condyle of the humerus; the brachialis internus was entirely destroyed, except in a part of its upper extremity; its place filled with the same grumous matter. The brachial artery and varices were untouched, the matter reaching the inner border of their sheath, but not completely eroding it; the biceps muscle sound. The ulnar nerve was destroyed in a part of its course, which passed through the fluid; artery of the brachialis internus was of course destroyed, and the tumour was probably formed by hæmorrhage from that vessel; the basilar vein was untouched. The elbow-joint is disorganized. Both the sigmoid cavities of the humerus are denuded, the bone exposed and of a yellowish colour; the cartilage covering the extremity of the bone is but little altered, that on the head of the radius is destroyed at its centre, a narrow border remaining at the edge. The cartila-

ginous face of the olecranon offers a number of little depressions of a reddish colour, formed by partial destructions of the cartilage. The muscles on the anterior part of the forearm, to the distance of more than an inch from the articulation, were dissected and partly destroyed by the matter beneath the fascia. No false membrane surrounded the matter, but one was distinctly visible in the abscesses described in the left arm. Another abscess containing thick, whitish pus was found in the right ischiatic fossa, not communicating with the hip-joint. Some other joints were opened, but were sound.

Abdomen.—*Stomach* containing a watery liquid, moderately distended. The mucous membrane is in general pale, with some slight pencilled redness, especially in the small curvature; on the posterior face of the large tuberosity there was a large yellowish patch evidently tinged by the contents; the mucous membrane in the arch described, was thinner in bands than in the rest of its extent, and large vessels were visible in that part of the stomach only. Mammillation with large prominences exists throughout the stomach. Strips of natural length; the membrane every where firm. *Duodenum* containing a yellowish matter with numerous follicles, without a central point. *Small intestine* coloured by its contents, of an intense yellow to the distance of three or four feet from its commencement, this tint is afterwards gradually replaced by the usual paleness. No punctuated redness, or even arborizations, and but very few veins observed in the intestine. Thickness and consistence every where normal. A few isolated follicles, (glands of Brunner,) observed near the middle of the intestine. The glands of Peyer were not very numerous, found only towards the end of the ileum, of the dotted, gray aspect, little prominent above the membrane. The state of the mesenteric ganglia not noticed. *Large intestine.* The mucous membrane in the first half of its length was extremely pale, the follicles scarcely visible; the strips were eight or ten lines in length. At the beginning of the second half the mucous membrane not changed in colour; the follicles became larger, of a darker gray colour than those above mentioned. A little lower there were some very small, elevated spots, a line to a line and a half in breadth, of an intense red colour, in the middle of some of them there was a little grayish point, apparently forming part of the membrane, (and excepting the moisture of the surface, reminding one of the commencing stage of *psoriasis*.) In descending towards the rectum, the elevations became more numerous, larger, presenting two or three grayish points instead of a single one, and afterwards the same substance projected above the membrane in form of a vegetation very distinctly seen through a lens, and of a greenish-

gray colour. In the midst of these prominences the mucous membrane is replaced in the extent of an inch or two, and in its whole breadth by the vegetation described, which covers the whole surface, formed by a multitude of greenish, round elevations, rather larger than a millet seed, many presenting a depression in their centre like the orifice of a follicle; the surface in general is unequal, the little projections accumulated in some parts in masses, leaving depressions of the same colour in others. The muscular coat is whitish, its fibres much developed, at least a line in thickness, but without scirrhus substance; beneath the muscular coat is another of yellowish cellular tissue, covering the peritoneum, which is of a pearly-white colour, more than half a line thick. The mucous membrane existed in the two inches below this portion, pale, but much softened, and presenting several of the red elevations described in the midst of enlarged and slightly prominent follicles. The rectum offered the same vegetations, covering its whole surface, except near the anus, where it was wanting in part; the stricture did not differ from that found a little higher in the intestine, but the surface was still more irregular, with ulcerations in a few circular spots, and some albuminous flocculi adhering to it. *Liver* of good consistence, rather flaccid, the two substances distinct. *Gall-bladder* contains a dark viscid bile. *Spleen* of the usual size, bluish, firm. *Kidneys* pale, normal. *Bladder* moderately distended with urine; mucous membrane pale.

Cranium.—Very little blood found exterior to the dura mater. A flaccid coagulum and a little blood in the longitudinal sinus. Surface of the arachnoid moist, very little serosity beneath it. Pia mater detached, without injuring the brain; its vessels not distended. Cortical substance pale; medullary firm, not injected; cerebellum and medulla oblongata equally sound.

Larynx and *trachea*, as well as the *pharynx* and *œsophagus* pale, not ulcerated.

Pericardium contained about two ounces of lemon serosity. *Heart* firm, rather pale, containing a soft coagulum, and a little liquid blood in the right cavities, liquid blood in the left. Large vessels and lining membrane of the heart pale. The *right pleura* offers some old adhesions. Upper and middle lobes of the right lung engorged posteriorly, but soft. Some hardened lobules in the posterior part of the lower lobe, which contains much reddish serosity. *Left lung* pale anteriorly, reddish and engorged in its posterior portion.

Remarks.—This observation, although long and tedious, is extremely curious in many particulars. The eruption occurred in a healthy, robust lad, was perfectly discrete, and proceeded through its stages—

with great regularity. Pain at the larynx and hoarseness were considerable, coming on between the third and fourth day; these symptoms diminished after the second application of leeches, and ceased almost as suddenly as they had appeared. The coincidence of the cessation of the pain and alteration of the voice, with the application of the leeches, is especially to be noticed, as it is the collection of a sufficient number of these therapeutic coincidences which establish their connexion as cause and effect. A comparison of the present with the preceding observations will indicate the frequency with which the larynx is affected in variola; the exact proportion must be decided by the comparison of a much larger number of cases than I have yet collected. The other parts of the respiratory system presented nothing remarkable during life except a slight mucous rhonchus, and the autopsy showed that the lungs were almost natural. The pulse never fell to less than a hundred pulsations, or exceeded a hundred and thirty pulsations in the minute, except the day previous to his death. The heat of the skin was always above the natural standard. The appetite was never destroyed and scarcely diminished during the whole course of the disease. Thirst always great, sometimes intense, requiring two or three times the usual portion of tisane to allay it. It would be idle to speak of the state of the tongue in variola as symptomatic of gastric disease; the connexion between the state of the tongue and certain affections of the stomach has been proven by the later pathologists to be generally illusory, and in small-pox its appearance is greatly modified by the development of pustules upon its surface. The lesions of the stomach consisted in the general mammillation of the mucous membrane, and the thinness without softening found in a small part of the great tuberosity. The small intestine was perfectly sound, as well the isolated glands of Brunner and the agglomerated ones of Peyer, as the structure of the mucous membrane. The large intestine was nearly natural in its first half, perhaps a little softened; but in its latter part presented a singular transformation. First, let us observe the mucous membrane remained pale, the follicles suddenly became more distinct, then amongst the follicles were found the little red elevations described with a point of the grayish substance, which soon became more abundant, and finally existed in the whole surface of the intestine. What was the nature of this vegetation? I am tempted to believe it a secretion from the inflamed follicles, or perhaps these organs themselves which had become changed; and this opinion seems to me the more probable, when we reflect upon the aspect presented in the part of the intestine in which this structure was most developed. The thick-

ening of the coats of the intestine and the firmness is also a singular pathological phenomenon, especially if it occurred, as is very probable, during the course of the variola. If it had existed previously, the health and robust appearance of the patient were not affected; he was unconscious of the extensive disorganization of the colon, and the case is an example of the insidious progress of some of the accidental structures. The symptoms did not produce the slightest suspicion of the nature of the lesion; constipation existed for a long time, but this symptom indicates no special disease of the large intestine; a week before death diarrhœa came on, and almost immediately became so violent as to prove the immediate cause of death. The number of abscesses is also remarkable, and especially the collection of grumous matter and blood connected with the elbow-joint, which in itself would have been regarded as a sufficient cause of death. The formation of the abscesses coincided with the termination of the suppuration, a connexion I believe usually observed; but was preceded by nothing peculiar in the eruption which had advanced very regularly, and the pain at its beginning was mistaken by the patient for an old rheumatismal affection. It shows us a melancholy fact that in small-pox, like other severe acute diseases, such as cholera and typhus fever, the patient should never be regarded as out of danger until his strength be nearly restored. The term convalescence is sometimes a very deceptive expression.

Observation VIII.—A boy, eleven years of age, of robust appearance, was admitted the 26th September. He had just become an apprentice to a chair-maker; he contracted the itch in this employ, and was received at the hospital in the wards appropriated to those infected with it. On the 11th September, he was treated by sulphurous baths, and enjoyed perfect health until the morning of the 22d, when he became ill with head-ache, without chill or other pain than in the head; he had neither vomitings nor diarrhœa, but suffered from fever and loss of appetite.

23d. Cephalalgia, anorexia, and fever persisting.

24th. Bowels opened; diminution of other symptoms.

Present condition, Sept. 26th.—Evening visit. Eruption on the face of discrete papulæ, the largest a line and a half in diameter, and some of them vesicular; the hands and arms present distinct vesicles, larger but less numerous than those on the face; discrete and large on the abdomen, but very numerous on the thorax, and moderately so on the inferior extremities; skin between the vesicles little injected; no cephalalgia; senses perfect; intelligence tolerably de-

veloped; pulse regular, 88; respiration regular, 20; ^{no} cough; tongue moist, rather large, reddish at the edges, grayish at the centre; papulæ developed; abdomen yielding, without tenderness; no stools since the day before yesterday; no pain or itching of the skin.

27th. Eruption confluent on the lips; a central depression exists in the vesicles of the face, but still more marked in those of the arms; pulse 100; respiration 24; no unpleasant symptom; appetite; vesicles on the palate, but scarcely increased redness. Lemonade; infusion of violets; broth, twice.

28th. Injection of the face; vesicles of a pink tint, which does not exist in the rest of the body; no cephalalgia; no pain at the throat, but he thinks he is a little hoarse; tongue whitish at the centre, and reddish at the edges, where three or four vesicles exist; no increase in the swelling or redness of the fauces; bowels open once; pulse regular, of the usual volume, 106; respiration 24, pure; skin hot; rather dry; appetite. Same prescription.

29th. Sleep not disturbed; two dejections, but not liquid; pustules are whitish, still much smaller on the face than the rest of the body, retaining their reddish tint, and surrounded by a slight areola; the eruption is entirely confluent on both thighs, reddish and vesicular; tongue not changed; a little hoarseness; no pain or cough; pulse 112, regular; respiration 20, strong and pure. Prescription continued.

30th. Sleep not interrupted; one dejection yesterday; no pain except at the throat, which is increased by deglutition; less injection of the face; pustules advance regularly; eyes weeping, not injected; tongue reddish at the edges; pustules remain on the palate and tonsils, which are swollen and red; hoarseness, but not shrill tone of the voice; appetite; thirst; pulse regular, quick, 140. Lemonade; barley water with honey; broth.

October 1st. The epidermis is detached upon the greater part of the thighs and removed entirely in a portion of this surface; the denuded skin is red, secretes a viscous fluid, and is covered with reddish ecchymoses, of the form of the original vesicles; pulse 134, small and feeble; stupor; voice very hoarse. Same treatment.

2d. Stupor increased; now continual; skin injected; pustules depressed, of a pale yellow, even on the face, but livid generally except on the face; the denuded surface of the thighs is become dry; lips dry, encrusted; nostrils filled with mucus; delirium; he speaks to himself incoherently, and replies incorrectly to our questions; tongue reddish and moist; breath extremely fetid; pulse 154, very feeble; respiration imperfect, but without rhonchus. In the evening

the delirium and stupor continued; pulse 156; blisters had been suggested but were not applied. Treatment limited to lemonade and tisane.

3d. Pustules shrunk as if the fluid had been absorbed; the same appearance exists over the whole surface; however, one of those upon the arms was opened and found to contain a little reddish serosity; delirium incessant, loquacious, alternating with stupor; voice disguised, almost aphonia; tongue a little reddish; respiration stertorous, 40; pulse 156, very feeble; bowels opened once; skin hot. Death the same day.

Autopsy the 5th, forty hours after death.—External appearance. Pustules covering the whole surface, confluent in many parts, whitish and shrunk; large and dry ulcerations on the thighs and back; no rigidity; posterior parts not very livid; muscles of a violet colour, a little infiltrated.

Cranium.—Almost no blood on the exterior of the dura mater, a little blackish blood in the longitudinal sinus; no effusion in the great cavity of the arachnoid, or beneath that membrane; pia mater not injected, easily detached from the convolutions; brain very firm; cortical substance pale; medullary not injected; a few drops of serosity in the ventricles. *Cerebellum* and *annular protuberance* pale and firm.

Neck.—No pustules visible on the base of the *tongue*, *pharynx* or *œsophagus*, which are pale and not ulcerated. The interior of the *larynx* offers neither pustule or ulceration, but the membrane is of a dirty green colour, rough, of unequal thickness, but firm. Near the angle of the thyroid cartilage a little patch of lymph was observed, with some redness of the subjacent membrane. The green colour extended throughout the whole trachea, penetrating all the tissues, even the cartilages not excepted: at the bifurcation of the bronchia the greenness suddenly disappeared in the left bronchus, leaving a strongly-marked line of demarcation at the angle, and was replaced by a dark livid colour, equally penetrating through all the coats. The green colour continued in the right bronchus until it was gradually lost in the smaller ramifications. The mucous membrane was firm on both sides.

Right *pleura* slightly adherent; no serosity in either. Both *lungs* are of a dark-red colour externally, and still more marked internally; the right is besides a little tinged with green, and much engorged with blood. The upper lobes of both are soft and crepitant. The lower lobe of the left, and in a still greater degree the middle and lower lobes of the right are, although not hepatized, more friable and

less yielding than the upper. The lungs yield a penetrating but not a gangrenous odour. *Pericardium* contains a little reddish serosity. *Heart* very flaccid; a little coagulum with dark blood in the right cavities; almost nothing in the left. The internal membrane of the heart and arteries, as far as traced, were of a livid red colour, which was deeper in the veins, in which there was some dissolved blood. (It is to be recollected that all the cellular substance and the body in general partook of this tint though in a much less degree.)

Stomach of moderate size, reddish externally, especially in the cardiac half; it contains a little reddish mucus. The mucous membrane presented a singular appearance; very nearly the half nearest the cardia, especially on its posterior face, was of a deep purple colour, formed by ecchymosis beneath the membrane in the subjacent infiltrated tissue; the rest of its surface was of a pale slate colour, with scattered patches of the same kind of ecchymosis. The membrane was mammillated throughout; the prominences about a line and a half broad, most distinct in the purple colour; scarcely any arborizations or punctuated redness were found; thickness and consistence normal. *Small intestine*. Contents are a brownish liquid, becoming more yellow towards its termination; externally it was of a pale violet colour. The mucous membrane throughout violet-gray, with patches of various extent, and of the same deep red colour as that described in the stomach, and also caused by submucous infiltration; arborizations very rare; length of strips a little less than usual, but not affected by the redness; the glands of Peyer were very distinct, scarcely prominent; partaking in the surrounding colour, but at the same time retaining their bluish punctuated appearance; a few isolated glands of Brunner were found in the last four or five feet. *Large intestine* not distended, containing some yellowish-green fecal matter and a lumbricus. The mucous membrane presented few follicles; it was of a grayish colour in the cæcum, and afterwards the grayish ground alternated with red patches, like those in the small intestine; strips rather less than natural, from seven to eight lines only. *Liver* brown, but with a grayish cinereous shade; softer than usual, but not pulpy. *Gall-bladder* contains a moderate quantity of dark-green bile. *Spleen* three inches and a half long, firm, containing much blood. *Kidneys* tinged with violet.

Remarks.—The precise day of the eruption on which death took place could not be ascertained, the patient probably fixing the appearance of the eruption at an earlier date than it had really occurred; indeed it could not have existed before the 25th, because he was permitted to remain in the itch ward until the following day; a delay

which could not have occurred after the development of small-pox. The day of his death was consequently the ninth of the eruption. The cause was here more intimately connected with the severity of the disease than the development of a secondary lesion; and the autopsy presented a very distinctive character in the alteration of the blood and the aspect presented by the different structures which in all of them seemed dependent upon the state of the fluids. Thus the colour of the cellular tissue and muscles, the deep claret colour of the internal membrane of the heart and vessels, and the sanguinolent infiltration of the digestive tube, seem all connected with the same pathological state. The singular greenish colour which existed in one lung only and in the bronchia corresponding, seems inexplicable; it is to be remarked that the lung was not gangrenous, and offered a lesion of its tissue, little different from that found in the other. The extent of the eruption and the large denuded surfaces are not to be forgotten in the estimate of the causes of death.

These eight cases are all those in which small-pox was fatal in the male wards at the children's hospital during the three months mentioned. Another patient was convalescent, and then attacked with gangrenous sore mouth of children, to which he fell a victim. The gangrene of the mouth is not rare at this hospital, but as it occurs in debilitated children, as a consequence of various diseases, or is sometimes merely the effect of a cachectic habit, it is not to be counted among the causes of death in variola. It would have given me great pleasure to have added this case as a supplement to these observations, especially as it was collected by my friend, M. Mannori, whose accuracy of observation and nice discrimination render it extremely precious; but the necessity of forwarding these sheets to America obliges me reluctantly to omit this interesting case.

I have concluded not to analyze these cases or compare their features; it would be inexpedient to deduce conclusions from so small a number, especially as it will be easy to increase the materials and an analysis will then become an expression of a general truth. They may serve as specimens of the disease, and may be regarded as isolated facts which may acquire some value when added to the mass of medical observation. I can only regret many omissions in the details which greater attention might have avoided, but which it is difficult for one little accustomed to careful observation, to remember at the moment of his investigations; but perhaps these omissions will not be regarded as diminishing the value of the facts recorded; at least I have taken especial care to note nothing which I had not myself examined. In concluding, let me remind the reader of the im-

portance of carefully observing the phenomena of disease, but while watching the morbid actions of the economy, and inspecting the changes that have taken place in the organs, we must recollect that the science of medicine does not consist in pathology, but that its object is to alleviate suffering and prolong life; that much more is to be anticipated from the researches of pathological anatomy than the science has yet revealed to us—but that the aid already received from it is much more than sufficient to stimulate zeal.

Paris, November 18th, 1832.

ART. V. *Case of Stricture of the Vagina, impeding Delivery.* By STEPHEN W. WILLIAMS, M. D. &c. late Professor of Medical Jurisprudence in the Berkshire Medical Institution.

IN the fall of 1831, the wife of O. H., aged twenty-three, was delivered of a dead child, weighing more than eight pounds, after the most severe labour, lasting forty-eight hours, that has ever occurred in my practice. The presentation was natural. For more than five weeks after her delivery her urine and fæces passed from her involuntarily, and it was more than six weeks before she was able to walk a step. At the end of eight weeks she was able to ride out, and was then comfortable. In the course of a year she became again pregnant, and on the 4th of June, 1832, Dr. STONE and I were called in consultation. Dr. Stone was with her several hours before I arrived; he told me that labour was progressing naturally, but tardily. He remarked that there appeared to be a stricture at the superior strait of the vagina, which impeded the progress of the labour. Upon examination I found his opinion correct. The stricture was situated about two inches and a half within the vagina, and *completely encircled it*. It admitted of dilatation to nearly the size of a dollar. On this stricture the head of the child rested; it felt like the os tincæ, but the os uteri, in the absence of the pains, could be felt beyond the stricture. Although her pains were regular, in consultation we determined to try the ergot, hoping it would increase them, and overcome the stricture. We accordingly administered twenty grains in powder; in fifteen or twenty minutes violent pains came on, which continued two or three hours; the stricture dilated very little, but the uterine efforts were not sufficient to overcome it. We now bled her largely, hoping thereby to relax it, but without avail. Upon further consultation it was

thought advisable to divide the stricture with a bistoury, as the only probable method of delivering the woman. The danger of the operation was represented to her and her friends, but the greater danger of letting her remain in this situation was also mentioned. The operation was cheerfully submitted to. I introduced the guarded probe-pointed bistoury flatwise upon the forefinger of my left hand, till it was completely beneath the stricture, and then cautiously elevated the edge, and divided the stricture in the upper part of the vagina, exactly in the same manner that I divide the stricture in strangulated hernia. The stricture was like a string round the mouth of a bag. This immediately liberated it all round the vagina. As her pains had continued a considerable time, but had now somewhat subsided, we gave her a large dose of the sulphate of morphia, and directed rest and quietude. This was in the forepart of the evening. She rested tolerably well during the night. In the morning we gave her twenty grains more of ergot; the effect of it was not so quick or great as from the former dose. I have often found that where it is necessary to give a second dose of ergot, it does not operate so soon as the first. Some writers say that this article will not operate at all in producing labour pains, unless they have been previously excited, and that then they increase them. My experience is in favour of this proposition. The pains, however, came on after a while in this case, and after a few hours of severe labour, Dr. Stone delivered her of a dead child, weighing nearly nine pounds.

The stricture in this case was one of unusual occurrence. I can find scarce an instance in the writers upon midwifery, where a stricture has entirely surrounded the vagina, preventing the passage of the head of the child. It will, at least, add one more to these rare occurrences, and inspire practitioners with confidence in the method of relieving them by an operation. I conceive it somewhat different from the cicatrices and bridles in the vagina occasioned by lesions, and former injuries of that organ, as the stricture in this case extended round the whole circle of the vagina, and was relieved in the same way as the stricture is relieved in strangulated inguinal hernia, by cutting it directly upwards and outwards. The stricture in this case very much resembled to the touch the os uteri, and would have been mistaken for that had not the os uteri been felt above it. DENMAN, under the head of cicatrices of the vagina, has mentioned the appearance of circular strictures, but he says he has not seen a single example where they have been able to withstand the pressure of the head of the child, if the pains were of the customary strength. He observes, that when these difficulties have been combined with other

causes, it must add to the difficulty, or if the pains subside before the completion of labour we must resort to other means, but we must be careful not to resort to them till we are certain that the difficulty cannot be overcome by the natural efforts. He does not inform us what the other means are, but leaves us to infer that they are probably the division of the stricture.

DEWEES is of opinion that the "terrible alternative" of cutting instruments in cases of bridles, indurations, and cicatrices, "is no longer, or at least so frequently necessary as heretofore, since it is found in some of the most distressing and extensive injuries of this kind, to have yielded in a very short time to the relaxing influence of a copious bleeding." This remedy in this case was of no avail, and we are of opinion that nothing short of the knife could have effected the delivery.

VELPEAU met with one case of a large crescent-shaped bridle, which was hard, and, as it were, fibro-cartilaginous, on the free edge of which he found it necessary to make three incisions. I presume he delivered the woman, but he does not say so.

CÆSAR HAWKINS, in the *London Medical Gazette*, says, in these cases of partial obstruction, where pregnancy has taken place, it is probably advisable to operate as soon as possible, so that dilatation may be effected, and the parts properly cicatrized before delivery; there must otherwise be considerable danger of more extensive laceration taking place during the expulsion of the child. The operation is necessarily one which requires great caution; but as an opening exists through which conception has occurred, there is at least a certain guide to the operator, who is in much less danger of injuring the bladder or rectum than in cases of complete obliteration. The difficulties have however appeared so great that SMELLIE even advises the performance of the Cæsarean section where there are large cicatrices and adhesions in the vagina and os uteri. CALLISEN also gives directions for the vaginal Cæsarean section, where the os uteri has been closed by inflammation.

An interesting case of strictured vagina preventing delivery, by Dr. McNAUGHTON, is recorded in the *New York Medical and Physical Journal*, for 1827. The stricture was divided, and the woman safely delivered. Another case is communicated to the *New England Medical and Surgical Journal*, Vol. XI. by Dr. STIMSON, of Dedham. This, also, was operated upon by Dr. MILLER, and the woman was delivered with laceration of the vagina and rectum. She ultimately recovered.

In the *Transylvania Journal of Medicine*, for February, 1829, as quoted in this *Journal*, a case is recorded by Dr. RICHARDSON,

of a woman in her third labour, the delivery being prevented by a membranous septum across the vagina. Through the centre of this septum there was a small hole just large enough to admit the blunt edge of a small probe, through which the waters were discharged. This septum was divided, and the patient was delivered in safety. Her former labours had been severe. These are the only cases which have occurred to my recollection or research from a pretty extensive examination of books. I trust this case will add another interesting item to the list already enumerated.

The situation of the woman nine weeks after delivery is deplorable. Her urine and feces pass from her involuntarily; in other respects she is well. She complains of no numbness about her extremities; or about the region of the pelvis, still she has no feeling there. I have repeatedly blistered the sacrum, and applied the most stimulating lotions, and have given her large and increasing doses of the mild tincture of cantharides, means by which she was restored in her former lying-in. She already takes one hundred and eighty drops of the tincture every day, and is gradually increasing the dose without any sensible effect on the stomach or bladder. She has a mucous discharge from the vagina, and complains of some soreness there, but there was no laceration of the vagina at the time of delivery. I am inclined to believe that the mucous discharge is from the uterus, and not from the vagina. At this time, December, she has so far recovered that she has considerable sensation in her bladder and rectum, though she has not perfect command over her urine and feces.

Deerfield, Massachusetts, December 12th, 1832.

ART. VI. *Case of Prolapsus Recti, successfully treated by Excision.*

By J. W. HEUSTIS, M. D. of Alabama.

IN the tenth number of this Journal, for February, 1830, I made a few remarks upon the propriety of removing by excision the fallen portion of the rectum, in cases where the prolapsus had become obstinate or permanent. The remarks were founded on the practice of the celebrated DUPUYTREN, which Dr. VON AMMON, of Dresden, considers as deserving to be ranked among the most valuable improvements of modern surgery. This operation was said to consist in excising portions from the circumference of the prolapsed bowel, in such a manner as to form a star-shaped wound. The bowel is then replaced, and the cure is completed by the contraction of these inci-

sions in the process of healing, so as to prevent the recurrence of this disease. Two cases were given in support of this operation. The following were some of the remarks then submitted by the writer of this article. "Now the question is, whether the complete removal of the protruded portion by the knife would not be a less painful and more effectual mode of operating than these partial and interrupted incisions. The parts cut would in both instances be the same; and by the complete circular excision, carried round and through the base of the tumour, the wound would be less extensive, and by the removal of the stricture and the morbid portion, the wound would heal with greater facility." I then related a case in which this operation had succeeded in the brute creation, since which time I have had an opportunity of performing it upon the human family. The case was that of a child, five or six years of age, in whom the prolapsus had been of two years standing. It was with difficulty that the protruded portion could be reduced; and when replaced, without considerable pressure, would immediately return to its former prolapsed condition. I therefore determined to remove the diseased, indurated, and protruded portion with the knife. This was easily done, by gently withdrawing the tumour a little with the thumb and fingers of the left hand, and then cutting through the duplicature with a firm stroke of the scalpel. The cut and pendulous extremity was then returned within the sphincter. I saw the child again the next day, when I learned from my student, Mr. ADAMS, who attended at the operation, that the cut extremity of the bowel had subsequently protruded, and that very considerable hæmorrhage had taken place before it was discovered. The bleeding was, however, easily restrained upon the replacement of the bowel, and upon the use of cold applications, and returned no more. Considerable tenderness and soreness of the bowels took place, and continued for a few days, which was relieved by warm bathing and fomentations, low diet and aperients. In about ten days the child had recovered from the operation, and has since remained entirely well, and perfectly relieved from this disagreeable complaint.

In conclusion, I would remark, that in any similar case to which I may hereafter be called, I should not hesitate in resorting to the same practice; though with this precaution, to guard against intestinal inflammation, which I neglected in the case above related, of restricting the person to a low diet for a day or two previously, and emptying the bowels by a saline cathartic a few hours before the operation.

Cahaba, Oct. 15th, 1832.

ART. VII. *Case of Partial Congestion of the Cerebrum; Illustrative of the Plurality of the Organs and Faculties of the Intellect, with Remarks.* By WILLIAM M. FAHNESTOCK, M. D.

MUCH diversity of opinion still exists amongst philosophers in regard to the merits of the science of phrenology. At present it is attracting more attention than heretofore in this country, and there is every indication of a liberal disposition to give it that impartial consideration it so eminently demands from the investigators of truth. It has been neglected from prejudice, and the opposition of the metaphysicians, which have ever been arrayed against it; and especially from the reproach which has been so lavishly heaped upon craniology—a separate, and, in our opinion, a distinct science; as the absence of the evidences of the latter does not in the least impair the former. Phrenology, it must be confessed, is yet in a very imperfect state, though possessing high claims to favour—its fundamental propositions being founded in nature, and established, by well-attested facts, experiments and observations, on too firm a basis to be overthrown by ridicule, or the sophistry of schoolmen. Craniology, which is vulgarly deemed mere musings on an assemblage of bumps, but by the scientific regarded as a classification of outward signs of the prominent development of the particular organs of the brain, depends on many contingencies, and must ever present imperfect indications. It asserts the *possibility* of recognising on the exterior of the cranium the seats of the various organs and faculties. But few contend that it is *certain* or *infallible*. Not so with phrenology or cerebral physiology. It includes the study of the structure of the encephalon, its functions, its relations, its derangements—it proposes to fathom the phenomena of the intellectual and affective faculties—to elucidate the philosophy of the mind. It is a subject susceptible of as clear demonstration as any of the other vital functions, and certainly much easier determined and understood.

Some metaphysicians who oppose in toto the idea of any connexion of the mind with physical organs, and regard the brain as a mere passive mass of nervous substance, when met by incontrovertible facts, declaim and protest most vehemently against drawing any deductions from a single case, or in their own language, *to erect a theory upon an isolated fact*, while they, at the same time, build their whole system on hypothesis alone, without a single tangible fact to sustain their fairy web of fancy-work.

We do not intend by these remarks to enter into any discussion on the nature of the intellect, its essence, &c. but merely to introduce another pathological evidence, to the many already on record, showing that intelligence is connected with the cerebral organs; that those organs are multiple, and that the faculties are exercised according to the integrity of the structure of each individual organ, and are obstructed in part, or altogether, by congestions, or derangement in the various portions of the encephalon in which the different faculties are respectively located.

Baron LARREY, in his *Surgical Memoirs*, mentions several cases of wounds made by bayonets and swords penetrating the brain through the orbit of the eye, in which the memory for words was lost, but not of things. Dr. JACKSON has published a very interesting case of amnesia in the Third Volume of this Journal, in which cerebral congestion suddenly induced suspended the memory for words, without any other disorder of the intellectual faculties; all the others being in full activity. Professor DICKSON, of Charleston, has also communicated a case,* in which there was a total loss of names, but a distinct memory of numbers, and power of rapid computation remained. Plurality of organs and faculties would have given a ready solution to this case, without resorting to speculations on the problem of the mind having a greater aptitude to recognise the mathematical lines of figures. In the case which Professor WISTAR exhibited annually to the class in the University of Pennsylvania, if our recollection is distinct, there was a loss of ability to utter proper names when pressure was made on the anterior portion of the brain which was deprived of bone—the individual speaking with ease and fluency would stop articulating for a period sufficient to pronounce the name, and then go on to complete the sentence, as if unconscious of any interruption. Our reference to these few cases may suffice to screen us from the charge of laying too much might or stress on an isolated fact. An entire number of this journal would not contain the cases which might be adduced in confirmation of the plurality of the organs and faculties of the intellect.

The following case may afford additional argument to sustain the position.

In November last, (1831,) John Flanagan, Esquire, Prothonotary of Franklin County, in this State, a gentleman of much intelligence and respectability, was attacked with influenza, then so prevalent throughout our country, which affected the upper forepart of his head

* *Amer. Journ. of the Med. Sciences*, Vol. VII.

especially; and particularly *when* he coughed he suffered severe lancinating pain through the anterior lobes of the cerebrum, from the region of an inch and an half beneath the coronal suture to the inner angle of the eyes, which however did not prevent him from attending to his duties in court, then in session. One morning after coughing severely, and experiencing much acute pain in the situation mentioned, which *now* continued without any cessation, he went into court, and in qualifying the jury found himself unable to name the parties in the suit—names with which he was perfectly familiar. He proceeded—"You do solemnly, sincerely and truly declare and affirm, that you will well and truly try the issue now joined between"—and was interrupted by inability to articulate the names of the parties. After failing in two attempts, a gentleman of the bar rose in his place, and offered to discharge the duty, which Mr. Flanagan declined, and then proceeded the third time, but was arrested again as soon as he came to the names of the parties. He then turned to the judges, and told them that he was *slightly* indisposed, but would persevere, then placing his eyes on the names of the parties on the docket, both of whom were intimate personal friends, he proceeded the fourth time to the point at which he was before arrested, and was unable to proceed. The presiding judge named the parties, and Mr. Flanagan finished the affirmation without any further difficulty. The ability to articulate names was not only interrupted, but even the power to recall them was suspended. He could not recollect a single name one minute during the continuance of this congestion. The day following he was making an examination of the proceedings on the court record in a suit, and in referring from the minute book to the docket he would forget entirely the names of the parties. He recurred three times to the original entry, and had at length to take the names on paper, and trace it on the other; for as soon as he turned his eye from the name it was entirely obliterated from memory. During this period his perception was clear, memory otherwise distinct, judgment sound, and business habits unimpaired. After taking a little revulsive medicine, in the course of a few days he returned to his duties, and has not experienced any further inconvenience.

We do not mean to deduce any theory from this case: we have no favourite theory to support on this subject. Our ambition is to elicit truth, and record facts; to be applied when the science of analogy shall come to reconcile the discrepancies of our present imperfect philosophy. Philosophy, like all abstruse sciences, is progressive in

its advances, and its deductions are only to be received when supported by well-authenticated facts, or self-evident principles in strict analogy with nature. Our design is simply to add another fact to the mass of evidence, which illustrates and sustains the legitimate function of that delicate and wonderful organ, the encephalon.

One fact, we must remark, is worth a thousand conjectures; and we would be much more justifiable in proposing a theory founded upon a single fact, than to admit the vague assumptions and reveries of metaphysicians, which do not admit of being subjected to the test of demonstration. Instead of allowing the imagination to run riot in crude conjectures, and to revel in scholastic jargon, which has involved the science of physiology in so much obscurity, those who wish to arrive at any satisfactory conclusions respecting the manifestations of the intellect—the development of the mind—must examine minutely the structure of the brain, study attentively its functions, investigate its aberrations, and mark the abnormal condition of its diversified organs. An intimate acquaintance with the cerebral organization, cerebral physiology, and cerebral pathology, is indispensable to arrive at any certain knowledge of the operations of the intellect. Without these lights to direct us, we enter a labyrinth of doubt and darkness upon the very threshold of our speculations, and should continue to grope in fruitless research through bewildering mazes and interminable perplexities.

ART. VIII. *Remarks on the Use and Abuse of Fruits, Vegetable Acids, and other Articles of Diet, as Connected with the Origin, Prevention, and Cure of Diseases.* By J. WIGGINS HEUSTIS, M. D. of Alabama.

AS much diversity of opinion exists, not only among the medical profession, but society at large, with respect to the use and operation of summer and tropical fruits, as connected with the origin and prevalence of diseases, it is the object of the writer of this article to make a few practical remarks, and to adduce a few facts, in hopes of elucidating a subject upon which much doubt, vague speculation and uncertainty prevail.

I am aware that the all-absorbing subject of the cholera engrosses

most of the time and attention of the profession; but when we consider how little has been accomplished towards its prevention and cure by man's boasted wisdom and experience, like many other scourges of the human race, we are induced to style it, if not the *opprobrium*, at least the *irrisor medicorum*. But let not the gigantic strides and ghastly visage of this strange pestilence, and its appalling and unchecked victories, preclude the hope that there is in the stores of nature and art, or the provision of a benevolent Deity, a remedy and means competent to disarm this monster of its terrors—a power sufficient to pluck the envioned dart from the vitals of the writhing victim, and to infuse the balm of life and health. The science of medicine is progressive, and many diseases which were once the reproach of the profession, and the scourge of mankind, are now brought in subjection to the remedial powers of art. But whilst this result so devoutly to be wished is taking place with respect to the pestilence which is now spreading terror and desolation through our land, we should not lose sight of circumstances of more ordinary occurrence, and more intelligible and less mysterious in their nature.

Man, ever curious to know, and intent on ascertaining the nature and relation of causes and effects, for the want of an intimate and perfect knowledge, and of more extended and comprehensive views, is apt to combine coincidences, either of an ordinary or extraordinary nature, and to set them down in his philosophy as necessary and inseparable concomitants. Thus, the ignorant and the superstitious in civilized society, as well as the uncultivated sons of the forest, look upon the appearance of a comet as the prelude to war, pestilence, or famine; but as one or the other of these evils, in a greater or less degree, is the ordinary lot of humanity, a juster and more comprehensive view would teach us to consider them as accidental concomitants. Thus, too, a learned author of the present day has taken much pains to trace the appearance and prevalence of plague and yellow fever, to earthquakes and the eruption of volcanos. Is it strange, then, that when circumstances of more frequent and ordinary coincidence occur, the same relation should be supposed to exist? Thus, the prevalence of dysenteries, and other forms of gastric and enteritic affections during the summer and autumnal months, have been considered as owing their origin to the use of grapes, melons, and other fruits which then abound. Watermelons and muscadines, (a species of grape,) are denounced by many as particularly prejudicial, and an efficient cause of chills and fevers. I have known this prejudice carried so far, that in times of prevalence of bilious fever, physicians

themselves have proscribed these articles as noxious and dangerous to the human species, and fit only for the swine. Thus, nothing is more common than to hear that such a person has been attacked with fever in consequence of eating watermelons, and that children have been seized with fever, and cholera, from indulgence in the use of apples, peaches, grapes, &c. Were such diseases owing to the use of fruits, we should reasonably suppose that they would be much more general; for we find, that notwithstanding the prejudice against them, children, and others less sceptical on the subject, universally indulge in the use of such articles whenever they can be procured. Thus, I have known many children of the poorer class in this country, live almost entirely upon fruits and melons during the summer, and not only receive no injury, but thrive and fatten from their use. And this we conceive to be in perfect accordance with the designs and purposes of Providence, who, on a general plan, has, doubtless, arranged all things for the best. Were fruits interdicted by prudence as prejudicial to health, and conducive to disease, we should be deprived of a vast amount of the comforts and luxuries of life. In general, man's natural and unvitiated appetite is the best criterion of his necessities and wants. We accordingly find that during the hot, oppressive, and sickly months of summer and autumn, the taste fails upon the rich and luxurious viands, which were taken with such relish during the cooler portion of the year; and nothing is now more agreeable than cooling acidulated drinks, and ripe and juicy fruits. At this season our bodies stand in constant need of refreshment and repair; there is, by perspiration, a constant and rapid expenditure of the animal fluids, and as constant a disposition to vitiation and acrimony, of those that remain: these, therefore, require diluting, so that they may permeate the various emunctories and strainers of this nice machine, and find ready transit, and uninterrupted circulation through the fine and attenuated vessels of the system. Can any thing be better adapted to this purpose than those juicy and refreshing fruits which the God of nature has so bountifully provided for our comfort?

Never can I bring myself to believe that nature has been so preposterous and absurd in her arrangement, as to hold forth her golden treasures from the fruitful bough to tempt the eye and gratify the taste, only to lure the unfortunate partaker to his ruin. But some will say, though no injury may arise from the temperate and moderate use of ripe and mellow fruits, yet a free indulgence should be carefully avoided. It is generally admitted that temperance in all things is the most conducive and favourable to health: but it is diffi-

cult to draw the line between moderation and excess; what would be temperance in one would be excess in another. A certain quantum of aliment is necessary to keep up the various movements and expenditures of the system; if it falls short of this, the body becomes sickly and diseased, falling into phthisis, marasmus, or glandular obstructions; if, on the other hand, the supply should be in excess, plethora, obesity, apoplexy, &c. would ensue. It is remarked by CELSUS, however, that "it is better to eat too much than too little." And in nothing can freedom and repletion be indulged with so much safety and impunity, as in the use of ripe and succulent fruits. A certain degree of distention to the stomach seems necessary for the strength, support, and comfort of the system. An adequate quantity of nourishment in a condensed bulk, affords a far less agreeable and comfortable sensation than more bulky, dilute, and less nutritious food. A certain degree of distention is also more conducive to digestion, as thereby opening the rugæ of the stomach, and bringing into play and activity the fine reticulated arrangement of vessels that furnish so copiously the gastric juice—a fluid so important in the business of digestion. In the vegetable world we find that plants wither, degenerate, become diseased, and die for want of proper and sufficient nourishment; transplanted into a more genial and fertile soil, they put forth all their verdure, rejoice in the sunshine, and shake their green heads in the breeze. Does not the analogy hold good in the animal kingdom? Have we not, therefore, reason to apprehend, that much injury has been done by those who so strenuously urge the importance of abstinence and temperance in eating? Who contend that we should stint, bridle, and mortify our appetite; that it is a capricious judge of its own necessities and wants, and should be kept in subjection and restraint to the laws of soul-subduing reason and moderation. It is not here contended that the stomach is invariably the judge and criterion of its own wants. • We all know that there is such a thing as a morbid appetite, created in some instances, according to BROUSSAIS, by an over-activity in the capillaries of the stomach, not yet amounting to well-defined disease, or acute inflammation; but sufficient to give rise to an inordinate secretion of the gastric juice, and to act as an unaccustomed irritation to this organ. Such cases, however, come not within the perview of the present subject, and may generally be recognised by other peculiarities and aberration from the standard of health.

It is a fact well known, that during the months of summer and autumn, in unhealthy seasons and situations, the abdominal viscera are

liable to disease. This by some has been ascribed to heat acting upon the surface, and sympathetically affecting the internal organs. This view I consider as erroneous; inasmuch as if heat were alone concerned, we should, in all seasons, marked with high atmospheric temperature, whether salubrious or otherwise, observe the same effect; which is by no means the case. Nor do such visceral diseases ordinarily occur except in unhealthy climates and localities, and particularly such as are subject to intermitting and other grades and varieties of marsh or autumnal fever. Hence there would appear to be an identity in the causes and origin of all these diseases. I believe it is also generally admitted, that in fevers of the characters above alluded to, there is usually a great redundancy of the biliary secretion; this, again, has been ascribed to heat, exciting the hepatic system into unusual activity; but it is a physiological fact pretty well established, that the animal frame is furnished with the power of regulating its own temperature, and preserving it unchanged, as well in the frigid as the torrid zone. To what cause then, it may be asked, are we to ascribe this unusual and increased secretion of bile, which is so often remarked in the fevers of our climate as give them the name of bilious fevers? The query, I think, admits of being easily answered, viz. that it is owing to a vitiation of the animal fluids, which nature endeavours to obviate through the medium of the liver. If it is objected that we frequently observe a deficiency of bile in the higher grades of the fever of our climate, it may be answered, that the vessels of the liver from congestion may become overpowered and torpid, and no longer capable of discharging their peculiar function, in freeing the blood from excrementitious impurities, or from such as have been generated in, or received into, the body with our ordinary aliment. In such cases the effete and excrementitious matters, which should pass off with the secretion of bile, are retained in the circulating mass, rendering it still more impure, black and grumous.

I know it is much the fashion of late to overlook entirely the condition of the fluids in explanation of the nature of diseases, as the exploded dogma of antiquated ignorance; and which has been attempted to be brushed aside by recurrence to fundamental principles, as explained and unfolded by the exclusive physiological reformers of the present time. But however much I may be disposed to admire the doctrines of Broussais, and in many particulars I think he has essentially advanced the science of medicine, yet by directing the attention, so exclusively as he has done, to the stomach and bowels, as the seat and centre of so many diseases, I am induced to think, that

like all reformers, he has run into extremes; and that in shaking off the shackles of his predecessors, he has become too much infatuated with his own hypothesis. True it is that his doctrine is strongly corroborated by the *post mortem* examinations and appearances he has detailed; but we also find, that in the progress, as his opinions become more confirmed, so these inflammatory appearances of the stomach and bowels, which were at first scarcely or not at all remarkable, are wonderfully augmented; and so constant and inseparable, that he breaks out into an exclamation of wonder at his former stupidity and blindness. Well, admitting all this to be true, though we think that in many instances he has mistaken secondary for primary appearances, yet, admitting it to be otherwise, is it sound reasoning to urge, that because such changes are the most conspicuous in the inanimate body, they are, therefore, the only proper and legitimate criterion to direct our inquiries?

But we know that the circulating fluids of the living animal body do experience considerable changes, as well in quality as in quantity. How far such a change may be compatible with health, we are unable to determine; but when it passes a certain degree disease inevitably ensues. One of the most obvious instances in which such a morbid change of the condition of the fluids occurs, takes place in scurvy; a disease obviously depending upon a vitiation and acrimony of the animal fluids. One of the most common causes of this disease is solid animal food, or a scarcity of fresh and wholesome vegetable aliment. Among the predisposing are idleness and inactivity of body, and a cold, humid atmosphere. Hence the places and situations most subject to it have been on ship-board, besieged cities, where the people have been reduced to poverty and starvation, and to subsist on damaged and unwholesome provisions, and cold northern climates, when the inhabitants subsist mostly on fish, and salted animal food; as Iceland, Greenland, Cronstadt, the northern parts of Russia, and most of the countries from the latitude of 60° to the North Pole. Previously to the sixteenth century, Germany and Great Britain were extremely subject to this disease, owing to the scarcity of vegetables, and the almost exclusive use during the winter of salted beef and pork. Its ravages, also, on ship-board were dreadful, frequently destroying whole crews, a dozen or more dying in a day, as we read in the voyages of Lord Anson, Sir John Hawkins, Admiral Hosier, and others. It would appear that salted animal food has a greater tendency to produce scurvy than such as has not been salted. Thus, LINNÆUS says, that the Laplanders, who are unacquainted with the use of salt in their food, live exempt from scurvy; and that gentle-

men are cautious in the use of salt, lest living listless and inactive, they should be seized with scurvy.

It is very possible, that by education and habit, man might be rendered, in a great degree, carnivorous. Among the inferior orders of animals we find some exclusively carnivorous, which are, notwithstanding, as healthy and long-lived as those of the herbivorous kind. Such, however, is not the constitution of man in civilized society; his food is at first from choice, and subsequently from necessity of a mixed character, as most conducive to the health and well-being of the system. We are informed by *SINOPEUS*, that there are whole nations in Tartary who live altogether on milk and flesh, and that they are subject to violent epidemic scurvies, which at times sweep off as great numbers as the small-pox does of other nations. Dr. *FERRIER* found, that the exclusive use of animal food, had the effect of rendering a number of his diabetic patients scorbutic. We are told by *VAN SWIETEN*, that in Holland many who live throughout the winter on salted beef and pork, were greatly affected at the end of that season with scurvy; and that they were generally restored to health in the spring, by the use of fresh vegetables and fruits; the disease appearing again in winter upon returning to the use of their former diet. But he particularly remarked, that, by constantly eating old and acrid cheese, their relapse was hastened more than by any other cause. We are informed by Dr. *HUXHAM*, that in his country the disease prevailed among those who eat few vegetables, live almost exclusively on flesh and fish, and indulge too much in ease and appetite. The herpes which Dr. *PALLAS* mentions his having seen in more than one place in the Russian dominions, from the livid, foul, and spreading ulcerations occasioned by the slightest bruises, and from the mortification of the fingers, would appear to be of the scorbutic character. The Tartars, who are subject to this disorder, are utter strangers to agriculture. They live in a country where the soil is impregnated with salt, and abounding with salt lakes: their diet is fish, often salted when it is more than half putrid: Few or no vegetables are to be obtained.

Scurvy has been thought by some to originate in a great degree from the innutritious quality of the food. Poverty of diet, especially of solid provisions, by favouring an acrimony of the fluids, has, undoubtedly a disposition to produce it; but this of itself does not appear to be sufficient, or to constitute the real cause of the disease. Thus, we know that animal food is much more nutritious than that from the vegetable kingdom; yet it also appears, that the former, even when fresh, when used in undue proportion, is that which is

especially liable to produce this disease. But that a want of nutrition can have no share in its production, the following fact would go to prove; it is the case related by Dr. TROTTER, of five natives of China returning from England, on board the *Chesterfield* Indiaman, in the year 1783. These men were so fond of slush, which is the fat or salt meat skimmed from the water in which it is boiled, that with a sunning not to be described, they avoided the quick-sighted vigilance of the cook, and in five weeks from the time of their leaving England, become monstrously corpulent. In a short time they were seized with scurvy; and, although none of the crew had the least symptom of that disease, they suffered by it the whole voyage to a most dreadful degree, till the *Chesterfield* arrived in port.

Spirituous liquors also favour the production of scorbutic diseases, of which a few examples must suffice. It is stated by ELLIS, in his voyage to Hudson's Bay, that the bringing of two casks of brandy from York Fort for their Christmas cheer, was attended with fatal consequences. The people had been previously healthy; but indulging themselves too freely, they were soon invaded by the scurvy, "the constant attendant," observes the writer, "on the use of spirituous liquors." Dr. LIND remarks, that he has always observed the scurvy to increase in frequency and violence upon the ship's small beer becoming exhausted, and upon the substitution of brandy in its place; and that distilled spirits have a most pernicious influence on this disease. The testimony of Dr. ROBERTSON goes to show, that grog will produce scurvy when drunk to excess, let the person's circumstances and situation in other respects be ever so advantageous; and that he considers grog one of the principal causes of scurvy among seamen in the navy: the disease seldom appearing where good beer or wine is made use of; but that when men have been long at sea, one fit of intemperance will induce scurvy. And it was remarked by Dr. Trotter, that changing the beer for grog had a quick effect in increasing the number of scorbutic patients.

These causes, whether operating on sea or land, have a similar effect in producing scurvy. It has been remarked, however, that on shore, the disease in armies and besieged cities has, in many instances, been more fatal and pestilential; doubtless from the combination of foul air and miasmata. Thus in June, July, and August, of the year 1809, the army at *Terre aux Boeufs*, under the command of General Wilkinson, was nearly destroyed by a pestilential scurvy. The causes were the damp and marshy character of the soil; miasmatic exhalations; the wetness of the season; damaged provisions;

want of vegetables; spoiled flour; old, offensive, and unwholesome beef and pork; excessive fatigue; the want of repose during the night, owing to the troops not being provided with furs or nets to protect them from the annoyance of the musquetoës; the want of cleanliness in camp; the sick and well being confined in the same tents, which neither protected them sufficiently from the heat of the sun, nor kept them dry from the dews and rains. The leading symptoms were diarrhœa or dysentery; petechiæ and eruptions on the surface; spongy and fœtid gums; inflammation, erosions, and mortifications of the parotid glands, extending to the face and fauces; hæmorrhagies and sudden death. It has been remarked in England and other places, that when the preceding crop has been damaged, dysentery is more frequent among the common people. The plague at Delft, in the year 1557, is imputed by FAUSTUS to the eating of mouldy grain, which had been long kept by the merchants in a time of scarcity. The pestilential plague of Breda, during the siege of that place in 1627, as described by FREDERIC VANDER MYE, was occasioned by the want of wholesome food; the eating of horses and dogs, and of old and rotten cheese, and the dampness and crowded state of the houses. We are told by Dr. MONRO, that the reason of the frequency of scurvy among the soldiers at Bremen, in January, 1762, was the situation of the place, which was in a damp plain—the soldiers being quartered in very damp houses; at the same time no vegetables were to be bought in the market, and fresh meat and other fresh provisions being at so high a price, that the soldiers could not afford to buy them; but were obliged to live on salt meat and salted herrings during the winter; and expended what little money they had for spirituous liquors, which were sold cheap. The scurvy which prevailed in the French army in Egypt, as described by Baron LARREY, was very similar to that at Terre aux Bœufs. He observes that of three thousand five hundred scorbutics, who were admitted into the hospitals of Alexandria, two hundred and sixty-two died between the 1st of July and the 10th of October, 1801, when the troops embarked. He ascribes this disease to their eating salt rice, (being salted for exportation;) also great quantities of salted fish; using the unwholesome putrescent water of the cisterns; the want of vegetables and fresh provisions; and the great exhalation of miasmata, produced by the decomposition of a vast number of vegetable and animal substances that were in Lake Marcotis.

In illustration of the altered, acrimonious, and perhaps alkaline state of the blood in scurvy, the attention of the reader is requested to the following facts.

It was remarked by Dr. Trotter, in his experiments, that the urine of scorbutic patients changed vegetable blue colours to a green. Upon the same subject, Mr. PATTERSON, surgeon in the British Navy, observes, that when a vegetable blue infusion was added to the urine of a person labouring under scurvy, the mixture turned green; but when a similar addition was made to the urine of a healthy person, the colour of the infusion was no further altered than by being made lighter; and it was also found, that the urine of a person recovering from scurvy, lost the power of changing vegetable blues to a green.

The blood of scorbutic patients is dissolved, and more thin and fluid than natural. According to the observations of Lord ANSON's surgeons, Messrs. ETTICK and ALLEN, in the dissection of scorbutic subjects, the blood in the veins was so entirely broken, that by cutting any considerable branch the part to which it belonged might be emptied of its black and yellow liquor.

The fleshy or fibrous parts of the body are relaxed, soft, tender, and easily lacerated.

The water contained in the thorax and abdomen, found upon dissection, possesses such a high degree of acrimony and causticity, as to excoriate the hands upon coming in contact with it; showing a condition of the body very similar to that produced by alkaline substances. Thus we are told by HALLER, that the protracted use of lixivial salts, in which the efficacy of Mrs. STEPHENS' medicine consists, renders the blood acrid, alkaline, and scorbutic, and even raises vesicles upon the skin. And it is remarked by Dr. PERCIVAL, that the lixivial remedies employed for dissolving the human calculus are extremely destructive to some constitutions; and that there are instances of their having produced the most putrid diseases, and increased a disposition to scorbutic complaints. They sometimes bring on the most dangerous hæmorrhagies; and the regimen employed being chiefly animal diet, the putrescent state of the blood is thereby greatly increased. In further illustration of this subject, we may cite the following case, as related by Dr. Huxham. "I had lately," says he,* "under my care a gentleman of fortune and family, who had habituated himself to the use of vast quantities of the volatile salts that ladies commonly smell; and at length he would eat them in a very astonishing manner, as other people eat sugared caraway seeds. Α δειμυφαγεια with a vengeance; the consequence soon was, that he brought on a hectic fever; vast hæmorrhagies from the intestines, nose, and gums; every one of his teeth dropped out, and he

* Dissertation on the ulcerous sore throat.

could eat nothing solid; he wasted vastly in his flesh; his muscles became as soft and flabby as those of a new-born infant; and he broke out all over the body in pustules, which itched most intolerably, so that he scratched himself continually, and tore his skin with his nails in a very shocking manner; his urine was always excessively high-coloured, turbid, and very foetid. He was at last, with great difficulty prevailed upon to leave this pernicious custom, but he had so effectually ruined his constitution, that, though he rubbed on in a very miserable manner for several months, he died tabid, and in the last degree of marasmus." Very similar is that condition of the body induced by the excessive use of common salt. Dr. Percival* relates the case of a young woman, in tolerable health, who, according to advice, drank a pint of sea-water every morning, for three days successively, on account of a strumous swelling of her upper lip. She was, thereupon, suddenly seized with copious hæmorrhagies from the uterus and gums, and the appearance of petechial spots on different parts of the body. A hæmorrhage from the nose at length took place, accompanied with frequent faintings, which soon put an end to her existence. The doctor observes, that the blood which was drawn in her last sickness, was a putrid and dissolved gore. We are also informed by Dr. SHERWIN,† that in two gentlemen whom he attended, who lived in all the luxury of wealth, the scurvy appeared to be produced by an inordinate inclination for, and indulgence in, common culinary salt.

Very similar to this appears to be the situation of persons in a state of starvation. SCHWENKE observes,‡ that unless the blood is refreshed with new chyle, it becomes dissolved and putrid; the breath is foetid, and the secreted fluids are acrimonious and corrosive, destroying the parts in which they are contained. The blood of those who die of famine, says Huxham,§ becomes highly acrimonious, producing fever, phrenzy, and such a degree of putrefaction, as to be entirely destructive to the vital principle. Haller observes,|| that those who die of famine, the woman's milk becomes acrid, and the urine intolerably acrimonious. In the progress of the starvation, excruciating pains are produced by the erosion of the nerves; the vessels being broken, hæmorrhagies take place from the nostrils, from the stomach and intestines, &c.; and alienation of mind, epilepsy, delirium, and raging madness at length supervene, and precede the

* *Essays Med. and Experim.* Vol. II.

† *Edin. Med. and Surg. Journ.* Vol. X. p. 46.

‡ *Hæmatolog.* p. 131.

§ *On Fever.*

|| *Elem. Phys.* tom. vii. p. 167.

death of the patient. We are told by Dr. MILMAN,* that during a scarcity of corn, the indigent inhabitants of the colder districts of Italy, near the Alps, suffered considerably from scurvy. Their subsistence was frequently on the decoction of a few roots; and often, for a whole day, they never tasted any food. Dr. Lind remarks, that in ~~in~~ several religious orders, those who are obliged, by way of penance, to abstain a considerable time from food, perceive their breath become foetid, their teeth loose, their gums spongy and soft. BOERHAAVE says, that such animals as feed upon those of another kind, (i. e. carnivorous animals,) have their flesh disposed to turn easily into an alkaline state, and that those that feed upon herbs and water, make a chyle either sourish, or easily turning so, and consequently give milk of the same nature. Dr. YOUNG found,† that by feeding a bitch on vegetable food alone, she afforded milk acescent and spontaneously coagulating like that of ruminating animals, whereas, the same bitch, for a little time fed entirely with animal food, afforded milk manifestly alkaline, and not spontaneously coagulating.

With respect to the efficacy of vegetables, and particularly vegetable acids, a few observations will suffice; universal experience has now established their efficacy, so that no vessel now sails on an extensive voyage unprovided with the necessary antidote. We are told by Dr. Lind, that in seemingly the most desperate cases, the most quick and sensible relief was obtained from lemon juice, by which he has relieved many hundred patients, labouring under the most intolerable pain and affliction from this disease, when no other remedy seemed to avail. Mr. IVES says, that the most powerful of all the remedies he knew, was the juice of oranges and lemons, by the plentiful use of which, says he, many thousand lives in a large fleet, may be preserved in a voyage of moderate length, which, without this, would be lost. The concrete citric acid has also been used with the same view as the lime juice, and apparently with equal success; it is related by Dr. Trotter, that he had found it equally successful, if not to surpass the usual effect of the fresh lemon or Seville orange juice, curing the most desperate and aggravated cases in the course of a few days. Mr. MURRAY‡ observes, that after his arrival at the Island of St. Thomas, he cured a hundred and twenty scorbutic patients in little more than twelve days, with limes alone. Another remedy of great celebrity has been introduced by Mr. D. Patterson, surgeon in the British Navy; this is what Mr. Patterson calls *nitrous rinegar*, prepared by dissolving four ounces of nitre in a quart of

* Milman's Inquiry, p. 24. † Cullen's Mater. Med. ‡ Letter to Dr. Lind.

vinegar, from half an ounce to two ounces of this solution is exhibited, twice, thrice, or four times a day. The progress of recovery under this treatment is remarkable. The bowels are kept soluble, the secretion of urine is increased, and is changed from an alkaline to a healthy nature; the skin becomes more open and equable to the touch, &c. He informs us, that he was led to its employment, in observing that scorbutic patients had a great desire for acids; thereby inferring, that these were pointed out by instinct, as antidotes to scurvy. By the use of this remedy, he remarks, that he lost but one man, besides three that were sent to the hospital, out of one hundred and eighty scorbutics that came under his care, from October, 1793, to the middle of July, 1795, all the rest recovered on board—chiefly at sea, and under many disadvantages, without feeling any inconvenience from the want of lemons, and without the use of any kind of recent vegetable food.

Notwithstanding the various revolutions that have taken place in medical theories, scurvy has preserved a remarkable immunity from pathological innovation; and the fact of its dependence upon a vitiated condition of the fluids is so evident and well established, that few have presumed to question or dispute it; the principal difficulty and difference of opinion appearing to be the nature or kind of vitiation that actually exists. This I have endeavoured to illustrate in the facts above referred to, and adduced. At some future time I may resume the subject, and attempt to show that ripe fruits, vegetables, and vegetable acids, are no less beneficial as remedies and preventives of dysenteries, fevers, and the ordinary diseases of summer and autumn; and that the common prejudice against them is founded in error. At present, nothing is more common than the remarks that such a person was attacked with fever or cholera from eating vegetables, peaches, watermelons, and other summer esculents; but were the observation a little more general, free and unprejudiced, it might be also found, that an equal proportion have been seized after eating bread and meat, or other food of the most ordinary kinds. Is it not therefore unjust, that fruits and vegetables should be singled out and fall under the ban of proscription? To prevent the too rapid increase and undue accumulation of the human race, by an overruling Providence, various natural agencies are employed; and before whose scourge we can only bow in self-abasement, humility, and fear. In vain are the resources of the healing art appealed to, in vain do we abstain from the use of the most salutary food; the very atmosphere we breathe is filled with the semina of disease, whose touch and inhalation are poison, and whose operation is pregnant with death.

REVIEWS.

- ART. IX. *Human Physiology; illustrated by Numerous Engravings.* By ROBLEY DUNGLISON, M. D. Professor of Physiology, Pathology, &c. in the University of Virginia, Member of the American Philosophical Society, &c. *Vastissimi studii primas quasi lineas circumscripsi.*—Haller. 2 vols. 8vo. pp. 526 and 532. Philadelphia. Carey & Lea, 1832.

A COMPENDIUM of physiology, presenting a concise but accurate exposition of the present state of that science, has for some time been loudly called for. The rapid progress which physiology has made within the few last years; the new and important facts that have been developed in relation to it, by the talents and industry of those who have devoted their attention to the cultivation of this department of natural science; and the consequent change in the opinions entertained concerning the mechanism and functions of various parts of the human body, have, in a great measure, rendered obsolete the treatises which have heretofore served the student as text books. In France, as well as in Germany, several very excellent works, it is true, have recently appeared, in which are embraced all the recent improvements and discoveries in physiology; but, unfortunately, they are all of them, as yet, sealed books to a large portion of the profession in this country, from the want of an acquaintance with the languages in which they are written: several, especially of the German treatises, are likewise far too voluminous for general use. The recent systems of physiology that have issued from the English press, though many of them, particularly that of Bosrock, are composed upon an admirable plan, can scarcely be considered to give a fair and full exposition of the present condition of the science. All of them favour too much the hypothetical views of the older British physiologists; while under the pretence of separating facts from assumptions, much that stands supported by unquestionable evidence is rejected, and, in too many instances, the labours of the later continental physiologists are treated with the grossest injustice.

Dr. Dunglison has therefore conferred, in our estimation, a very great favour not only upon the student and younger members of the profession, by the publication of the work before us, but also upon that large and highly respectable class of physicians, who are com-

pelled by circumstances to depend upon compendiums like the one before us, for their acquaintance with the improvements in the various branches of medical science.

"In preparing the present work," remarks Dr. Dunglison in the preface, "the author has availed himself freely of the labours of his predecessors. His object has been to offer a view of the existing state of the science, rather than to strike out into new, and perhaps, devious paths. To the labours of Adelon and Chaussier—especially of the former—of Blumenbach, Richerand, Magendie, Rudolphi, Broussais, Sir Charles Bell and others, who have had the chief agency in raising physiology to its present elevated condition, he has been indebted for essential aid."

The great object of the author appears to have been to present in the work before us simply an outline, though a distinct one, of what is at present known in relation to the structure and functions of the human body; and in this he has succeeded in a very happy manner. Were we inclined to play the part of captious or even severe critics, we should be able doubtless to point out many imperfections and omissions in the work of Dr. Dunglison, and more than one instance in which the author has not perhaps presented in that strong light which their importance demands, the peculiar opinions of certain contemporary physiologists, with the facts and arguments upon which they are based; yet, as a whole, we consider the present treatise to confer a very great deal of credit upon its respected author, and recommend it to the public as one of the very best treatises upon human physiology in the English language.

Written in a plain, unpretending, but correct and pleasing style; presenting, generally speaking, a very full detail of those facts which may be considered as fully established, and an accurate and concise statement of the experiments and reasoning adduced on both sides of those questions, which are still in dispute, the treatise of Dr. Dunglison is well adapted for the use of the practitioner as a work of reference, as well as to initiate the student into the principles of physiological science, and prepare him for the study in detail of its several parts, either in the writings of those who have treated upon them with the greatest ability and minuteness, or by a course of observations and experiments upon man and the inferior animals.

The author has exhibited in most instances very great and commendable caution in treating upon those points in relation to which discordant opinions are entertained by some of the ablest physiologists; though occasionally we conceive he has been induced, by a superficial view of facts, to set down as doubtful or unsettled points upon which certainly very little doubt can now exist. The student is less liable,

however, to be led into error by this excess of caution, than by the usual dogmatism of systematic writers.

The plan adopted by Dr. Dunglison of illustrating the structure and mechanism of various organs and other points connected with his subject, by wood cuts introduced upon the same page with the text, we consider to be a decided improvement upon the ordinary system of dispensing with illustrations entirely or of resorting to engravings. The wood cuts, as employed by our author, are more readily referred to; may be multiplied to a much greater extent without augmenting considerably the expense of the work, and judging from the admirable style in which those before us are executed, we consider them to be in every respect as well adapted as engravings, to present an accurate idea of the subjects they are intended to represent. The cuts illustrating the structure of the nose, ear, and eye; and of the digestive apparatus; those of the expressions; and all of those connected with the subject of generation, are peculiarly excellent. In one or two instances engravings are likewise introduced, as in the plates of the nervous system and that exhibiting the craniological division of GALL.

It is not merely to the student of medicine and the physician that the treatise of Dr. Dunglison will prove interesting. To all who desire to become acquainted with the structure and physiology of man, either as a branch of liberal knowledge, or with a view to its direct application to some useful end, the work before us comes recommended by the clearness of its style and the general interest with which the author has succeeded in investing the various subjects of which he treats. It is evident from the preface, that the author in composing the work, had in view the instruction of the unprofessional as well as the professional student, and it is this circumstance probably that induced him to introduce many things, which, however curious and interesting to the general reader, are useless to the physician. It is true that the present work is more strictly technical throughout than most popular treatises on the same subject, but this, if it can be considered a defect, is amply compensated by a degree of accuracy to which the latter can very seldom lay claim.

In regard to the most judicious arrangement of a systematic treatise on physiology, much difference of opinion exists. The fact is, the different organs and their functions are so intimately connected in the human body, that with the history of whichever set of them we begin, a reference to the structure and actions of other organs will be necessary in order to render our descriptions and reasoning sufficiently intelligible. Dr. D. after a few introductory chapters devoted to general physiology, commences with an account of the animal func-

tions, or those of relation; after which he treats of the nutritive functions, and finally of the reproductive. This arrangement is probably as good a one as any other that could be adopted; it nevertheless appears to us to be liable to this strong objection, that the student is introduced at once into one certainly of the most difficult branches of physiology—the nervous system; and he is taught the relations of the body with exterior objects, and its intellectual powers or faculties, before he is supposed to have acquired any idea of its structure, and of the laws more immediately concerned in its growth and support. We should prefer to commence with the organic functions—a knowledge of which seems, in some respects, necessary previously to considering those of animal life or of relation.

The history of the animal functions begins of course with an account of the structure of the nervous system. Clear and explicit as the author certainly is in his description of the brain and its appendages, we should nevertheless say that he has committed a very great fault by being too concise, especially in regard to the important views that have been advanced by GALL, SPURZHEIM, SERRES, and other distinguished physiologists, concerning the growth and intimate structure of the brain, and the development and termination of the nerves.

Those views aid us so much in our investigations into the functions of the various portions of the nervous system that a full detail of them is important.

In his account of the mental faculties, Dr. D. has given a complete and fair exposition of the phrenological doctrines of Gall and Spurzheim; the advocates of the system will, however, have some cause to complain of objections being urged by the author against its correctness, without any reference to the manner in which these objections have been attempted to be obviated, and in more than one instance are shown to be invalid.

In treating of the motory apparatus and its functions, our author has done entire justice to his subject, as well in regard to the physical laws as to the vital phenomena connected with it. This portion of the work, with very few exceptions, presents a very interesting view of all that is known in relation to the structure of the muscles and bones, and the portions of the nervous system which preside over the motions of the former, and of the manner in which they effect the various and complicated movements the human body is capable of exerting.

It is impossible to follow the author in a regular review of all he advances in regard to these important subjects. In his general physiology of muscular action, as well as in his account of the physiology

of the attitudes—of the movements—the expressions—including voice and gestures, the student will find all that is known in relation to each, and the general reader many details of a highly interesting and instructive character. To show the manner in which Dr. Dunglison treated these subjects, we had marked one or two passages for insertion here, but so intimately and skilfully are the materials blended by the author, that we should scarcely be doing him justice were we to extract less than an entire section, and this our limits will not permit us to do.

An account of the structure and functions of the digestive organs introduces the subject of nutrition. The author's description of the various apparatus concerned in this interesting process is rendered extremely clear by the aid of numerous finely executed wood cuts. On the subject of aliment we have to regret that Dr. D. has not compared, with sufficient caution, the large mass of facts which history, experience, and direct experiment furnish, so as to deduce from them certain fixed principles applicable to the various conditions and circumstances under which man is liable to be placed. The subject of aliment is one that has occupied the attention of numerous inquirers, and the results at which they have arrived are all important, whether we consider them in reference to the preservation of health and the development and support of physical strength, or to certain questions in political and domestic economy. To the correctness of what the author has advanced, generally speaking, we have nothing to object, but we conceive that the vague manner in which he has expressed himself on many points connected with this subject will be apt to mislead, or at least will convey to the reader no very definite idea.

In treating of chymification, Dr. Dunglison, founding his views upon the experiments of SPALLANZANI, STEVENS, REAUMUR, TIEDEMANN, GMELIN, and others, is inclined to ascribe the changes which the food undergoes in the stomach, almost exclusively to the solvent action of the gastric fluids. After enumerating the various hypotheses that have been advanced to explain stomachic digestion, Dr. Dunglison observes:—

“Of all these theories of chymification, that of chymical action, aided by the collateral circumstances to be presently mentioned, can alone be embraced; yet how difficult is it to comprehend, that any one secretion can act upon the immense variety of animal and vegetable substances, which are employed as food. The discovery of the acetic and muriatic acids in the secretions, aids us a little in solving the mystery, but not much. There is not a tissue of the body which is not dissolved, if subjected long enough to the action of the former of these acids; and organic chymistry may hereafter exhibit to us some chymical agent, which has hitherto escaped detection, and which is capable of rapidly

reducing to chyme all substances—both animal and vegetable—when placed under the favourable circumstances in which the gastric juices are situated in the stomach.”

The supposition of a future probable discovery which is to solve all the difficulties under which we at present labour, in explaining any process that takes place in the human body, is, we confess, a very convenient hypothesis, though it may be objected to it that it tends but little to increase our actual amount of knowledge. But again, to return to our author

“Let us inquire,” he remarks, “into the various agencies to which the food is exposed during the process of chymification. *First*. It becomes mixed with the secretions, already existing in the stomach, as well as those excited by its presence. *Secondly*. It is agitated by the movements of the neighbouring organs, and by the peristaltic motion of the stomach itself. *Thirdly*. It is exposed to a temperature of from 100° to 102° of Fahrenheit, and, perhaps, during digestion, to one even higher than this.”

“But many physiologists,” the author had previously stated, “whilst they admit that the change effected in the stomach is of a chymical nature, contend that the nature of the action is unlike what takes place in any other chymical process, and that it is, therefore, necessarily *organic* or *vital*, and appertaining to *vital chymistry*. Such are the sentiments of Fordyce, of Broussais, and of Chaussier and Adelon. The physiologist should not, however, have recourse to this explanation, until every other has failed him. It is, in truth, another method of expressing our ignorance, when we affirm, that any function is executed in an *organic* or *vital* manner; nor is this mode of explaining the conversion of the aliment into chyme necessary. The secretion of the fluid which is the great agent of chymification, is doubtless vital; but when once secreted, the changes effected upon the food, are probably unmodified by any vital interference, except what occurs from temperature, agitation, &c., which can only be regarded as auxiliaries in the function.”

In proof of stomachic digestion being effected by the agency of a solvent fluid, Dr. Dunghlison adduces the cases of what are termed digestion of the coats of the stomach after death.

To all this we reply—1st. That notwithstanding all the experiments that have been performed to prove the solvent properties of the gastric juice, we have no further evidence that the fluids of the stomach possess a specific solvent or chymical property, capable of converting the various and dissimilar articles employed by man as food into chyme, than we have of a similar property being possessed by any other of the animal fluids. If it has been proved, and we admit the fact, that portions of flesh under certain circumstances become softened when exposed out of the body to the action of the gastric fluids, so can it also be proved that precisely the same kind of softening will take place from the action of other fluids secreted by the

living organs. 2dly. It has never been shown by chymical analysis that the produce of what has been called artificial digestion, or of the action of the gastric juice upon food out of the body, is of the same nature as the chyme which is formed in the stomach—for we must constantly keep in mind that chymification does not consist merely in the reduction of our food to a soft pulp, but in its being caused to undergo a change in its chymical composition. 3dly. That in relation to the softening and perforations of the stomach which are occasionally detected after death, we have no certain evidence of their being effected by the action of the gastric juice, but many facts would seem to indicate either that they are the effect of a diseased condition of the coats of the stomach existing during the life of the subject, or have been produced by an excess of acid in the stomach after death. Even though we should refer them to the solvent action of the gastric fluids, which cannot be supposed to be the case in very many instances, this will not prove that the chymical change in the food which converts it into chyme is produced by the agency of these fluids; and 4thly. That the doctrine which teaches that digestion is the result of the vital action of the stomach upon the food contained in it, is not a greater confession of our ignorance in relation to it, than to refer chymification to the chymical action of a fluid or fluids, which action however is totally different from that of any other chymical solvent, and is not governed by any of the established laws of chymical affinity.

The fact that the immediate contact of the food with the mucous coat of the stomach is essential in order that chymification shall take place, appears to us to be altogether opposed to the supposition that this process is effected by the action of a solvent fluid. Chymification, as Dr. Dunglison very properly remarks—

“Always takes place from the surface towards the centre; the nearer it lies to the surface of the stomach, the more it is acted on; and that part of it, which is in contact with the lining membrane, is more digested than any other; appearing as if corroded by some chymical substance capable of dissolving it.”

The correctness of the following statement we cannot, however, admit.

“A piece of the coagulated white of egg is affected,” (by the action of the stomach,) “precisely as if it had been placed in weak vinegar, or in a solution of potassa; and if the food be covered by an indigestible stratum, the solution takes place within it, whilst the envelope remains unacted upon.”

Facts innumerable will bear us out when we assert that the action of the stomach upon the food is arrested by whatever prevents immediate contact between the latter and the mucous surface of the diges-

tive organ. The slightest envelope of an indigestible nature effectually prevents the conversion of food into chyme. Even the thin stratum of chyme formed upon the surface of the food, if any cause prevent its removal, would appear sufficient to arrest any further change in the latter. Hence if during digestion the stomach is paralyzed by the division of the eighth pair of nerves, the solvent action of the stomach is suspended and the food is found, when examined several hours afterwards, to be, with the exception of a thin layer at its surface, entirely unchanged. Digestion in these cases being evidently suspended in consequence of the chyme already formed not being removed by the action of the stomach, so as to allow of the food beneath being brought into contact with the mucous coat. The secretion of the gastric fluids is not suspended; consequently if they were the agents concerned in chymification, this process should go on notwithstanding the division of the nerves.

Unquestionably a softening of the food taken into the stomach is produced by the action of the fluids secreted in that organ, but it is equally true, that when the food has been thus softened, it has to undergo other changes before it assumes the characters peculiar to chyme.

Dr. Dunghlison admits with great readiness, and as we think very properly, that chyle is formed "by an action of elaboration and selection exerted by the chyloferous vessels." The process which the chyme undergoes in the small intestines—

"Consisting in a further change, by which the chyme is converted into a substance whence *chyle* can be extracted, by the action of the chyloferous vessels or lacteals."

"No difference is observable between the chylous and excrementitious portion of the chyme in any part of the small intestines; nor can it be separated by pressure nor any other physical process."

May we not claim, with equal propriety, for the absorbents of the stomach, in the process of chymification, a somewhat similar action to that which our author has accorded to those of the small intestines in the elaboration of the chyle? Is it not at least a probable hypothesis to suppose that the gastric absorbents produce the chymical change in our food necessary for its conversion into chyme by separating from it, after it has been adapted for their action by mastication, admixture with the saliva, and with the gastric fluids, certain principles, whether proximate or ultimate, we pretend not to say, leaving only such as enter into the composition of the chymous mass?

The several chapters devoted to chylosis and to absorption generally, will be found rich in facts; while upon these highly interesting

subjects, the author's conclusions are in general drawn with commendable caution, and in accordance with the best established facts.

On the generally received opinion, that the chyle is separated from the chyme in the duodenum by the action of the bile, Dr. D. makes the following remarks:—

Direct experiments have been made for the purpose of testing the use of the bile in digestion. Mr. Brodie tied the ductus communis choledochus in young cats, so as to prevent both the hepatic and cystic bile from reaching the intestine. He found that chylification was interrupted, and that there were neither traces of chyle in the intestines nor in the chyloferous vessels. The former contained only chyme, similar to that of the stomach, which became solid at the termination of the ileum; and the latter a transparent fluid, which appeared to be a mixture of lymph and the more liquid portion of the chyme.

“Magendie, however, repeated these experiments on adult animals, and with dissimilar results. The greater part of the animals died of the consequences of opening the abdomen, and the operation required for tying the choledochus duct. But in two cases in which the animals survived some days, he discovered that digestion had persisted, that white chyle had been formed, and stercoraceous matter produced. This latter had not the usual colour, which, as he remarks, is not surprising, as it contained no bile.

“The experiment was likewise repeated by MM. Leuret and Lassaigne, and with results similar to those obtained by Magendie. In the duodenum and jejunum, a whitish chyme adhered to the parietes of the organ; and in the thoracic duct, a fluid existed of a rosy-yellow colour, which afforded on analysis the same constituents as chyle, although the animals which were the subjects of the operations, had been kept for some time without food.

“Notwithstanding the discordant results of these experiments, we can scarcely doubt,” adds Dr. D. “that the bile and pancreatic fluids are the chief agents in the conversion effected in the duodenum.”

That both the bile and the pancreatic fluids serve important purposes in digestion there can be little doubt; but that the formation of chyle and the perfect nutrition of the body will not be prevented by the absence of the bile at least, has been proved incontestably. If the experiments and reasoning of Tiedemann and Gmelin, which our author has omitted to notice, are to be depended upon, Dr. BRODIE, as well as Mr. HERBERT MAYO, by whom the experiments of the former were repeated, and with similar results, was misled, in asserting that chylification is suspended when the common duct of the biliary apparatus is tied, by the absence of the white colour which the chyle usually presents. Now, the German physiologists just alluded to, maintain that the white colour of chyle is owing to fatty matter taken up from the food by means of the bile, which possesses the power of dissolving fat, and probably, therefore, aids in effecting its solution in the chyle at the mouths of the lacteals. It is well known that the white colour

of the chyle is equally wanting in ordinary digestion, provided the food contain no fatty matter.

The experiments performed by Tiedemann and Gmelin in reference to this point, were much more elaborate and precise than those of any other physiologists. When the ductus communis choledochus was tied in animals, they observed like Brodie, Mayo, Leuret and Lassagne, that chymification went on as perfectly as in a sound animal. In the small intestines they found nearly the same principles as under ordinary circumstances, with the exception of those derived from the bile; and in particular they found in the duodenum, in contact with its mucous membrane, the soft, flaky matter, which some physiologists have erroneously supposed to be chyle. The contents of the large intestines were likewise, with the exception that they contained no bile, the same as in sound animals; they had, however, an exceedingly fetid and disgusting odour. The lacteals and thoracic duct, when the animals were fed a short time before death, always contained an abundant fluid, which was generally of a yellowish colour. It coagulated like ordinary chyle; the crassamentum acquired the usual red colour; in short the only difference between it and ordinary chyle was, that after the tying of the choledochus duct it was never white.* We may therefore consider it as fully settled, that the bile, whatever secondary office it may perform in relation to chylicification, is not necessary to complete and perfect digestion.

In the section devoted to respiration, the author has been very happy in his selection and arrangement of facts. The various opinions that have been advanced to account for the changes the blood undergoes in the lungs, are very clearly, though concisely stated.

The same praise of accuracy and clearness may be bestowed also on the chapters which treat of the circulation. In relation to the interesting but very disputable point, that of the independent circulation carried on by the capillaries, the author thus expresses himself—

“The agency of the capillary vessels in the circulation has been a subject of contention. It was the opinion of Harvey, that the action of the heart is alone sufficient to send the blood through the whole circuit; but we have seen, that, even when aided by the elasticity and contractility of the arterial trunks, the pulsations of the heart become imperceptible in the smaller arteries, and hence that there is some show of reason for the belief, that in the capillary vessels the force may be entirely spent. Such, indeed, is the opinion of Bichat, who regards the capillaries as organs of propulsion, and alone concerned in returning the blood to the heart, through the veins. Magendie, again, conceives the contraction of the heart to be the principal cause of the passage of the blood

through the capillaries. In addition to the circumstances already mentioned, of the absence of pulsation in the smaller arteries, almost every writer on the theory of inflammation considers the point established, and leaves to the physiologist the, by no means easy task of confirming it. Dr. Wilson Philip placed the web of the frog's foot in the microscope, and distinctly saw the capillaries contract upon the application of those stimulants, which produce the contraction of the muscular fibre. The result of Dr. Thomson's experiments, in investigating the subject of inflammation, were the same, as well as those of Dr. Hastings. The facts which we have already referred to, regarding the continuance of the circulation in the minute vessels, after the heart has been removed, are confirmatory of the same point, as well as the observation of Dr. Philip, that the blood in the capillaries is influenced by stimulants applied to the central parts of the nervous system. Broussais asserts, that he has seen experiments, originally performed by P. A. Fabre, which showed that the blood in the capillary system frequently moves in an opposite direction to that given it by the heart,—repeated by Dr. Sarlandiere on the mesentery of the frog. In these 'the blood and all the fluids were seen to rush, for some moments, towards the point irritated; and when a congestion had taken place there, they remarked the globules taking a different direction, and traversing vessels that conveyed them in an opposite course, and, in a few seconds afterwards, these were again observed to return with equal rapidity to the point from which they had been repelled.'

"Of this independent action of the capillary vessels we have every day proofs in local inflammation, in which there is increased redness of a part without the general circulation exhibiting the slightest evidences of augmented action or excitement. In the natural state the tunica conjunctiva, covering the white of the eye, is not supplied with red vessels; but if any cause of irritation exist, as a grain of sand entering between the eyelids, we find red blood rapidly sent into the white vessels, giving the appearance which has been termed, not inappropriately, 'blood-shot.' This phenomenon is of itself sufficient to prove the existence of the separate action of the capillaries, and, when taken in conjunction with other facts, is overwhelming. The blush of modesty, and the paleness of guilt, the hectic glow, and the translucency of congelation, are all instances of modification in the capillary circulation."

Calorification receives from our author all that attention which so important a subject, upon which so many direct experiments have been made, and which has been so fruitful a subject for hypotheses demands. After stating all the facts connected with this part of physiology, and enumerating the principal theories which have been advanced to explain the production of animal heat, and its maintenance under circumstances which, according to the known laws by which the transmission or diffusion of caloric is governed, ought quickly rob the living animal body of a considerable portion of the heat it invariably possesses, Dr. Dunglison makes the following observations in concluding:—

"The correct view, it appears to us, is that embraced by, perhaps the gene-

ality of physiologists, who admit the caloric to be disengaged in every part, by a special action, under the nervous influence, and the presence of arterial blood; the latter either furnishing the materials, or merely acting as a stimulus. In this manner, calorification becomes, like nutrition, a function executed in the capillary system, and therefore appropriately considered in this place.

"It is by this theory alone, that we are capable of accounting for the increased heat that occurs in certain local diseases, in which the temperature exceeds by several degrees that of the blood in the large vessels.

"By some, it has been doubted whether, in cases of local inflammation, any such augmentation of temperature exists, but the error seems to have arisen from the temperature of the part, in health, having generally been ranked at blood heat; whereas, we shall find, that it differs essentially in different parts. Dr. Thomson found, that a small inflamed spot, in his right groin, gave out, in the course of four days, a quantity of heat sufficient to have heated seven wine pints of water from 40° to 212° , yet the temperature was not sensibly less than that of the rest of the body, when the inflammation had ceased.

"Of the mode in which heat is evolved in the capillaries, it is impossible for us to arrive at any satisfactory information. The result alone indicates that the process has been accomplished. In the present state of our knowledge, we are compelled to refer it to some vital action, of the nature of which we are ignorant; but which seems to be possessed by all organized bodies,—vegetable as well as animal.

"By supposing that calorification is affected in every part of the body, we can understand why different portions should have different temperatures, as the activity of the function may vary, in this respect, according to the organ."

The subject of secretion is next considered. It is impossible to follow the author in a regular review of all the important matter he has accumulated on this subject. So much obscurity envelopes the process throughout, and so many points connected with it require elucidation by a series of cautious experiments that all which can be expected in treating of it, is a plain statement of such facts as are known, and a comparison with them of the numerous opinions which have been advanced to explain the manner in which the different secreted fluids are produced. This Dr. Dunglison has done in a very happy manner—endeavouring, as in most instances, rather to introduce his readers to an acquaintance with what is actually known in regard to the subject, than to weave the materials he has collected into a theory of his own. This course, though it may be less acceptable to the indolent student and superficial reader, is one better calculated to convey correct and useful knowledge, than the more attractive system of making up by the exercise of the imagination what we want in well-ascertained facts.

"We cannot, however, agree with our author, that "the view which ascribes the bile to the hepatic artery, appears to be the most probable." Notwithstanding the well-authenticated cases on record, in

which bile was secreted although the vena portæ did not enter the liver, yet we must admit that the distribution of the branches of the portal veins throughout the substance of the liver, as an almost universal rule, would scarcely have taken place had it not been intended that some change should be produced by the action of the liver on the blood brought by these vessels from those of the alimentary canal. The opinion of Magendie appears to be the most correct, namely, that both the arterial and venous blood which circulates through the organ may serve in the secretion. This opinion is supported by anatomy, for injections prove, that all the hepatic vessels—arterial, venous, lymphatic, and excretory—communicate with each other. The recent experiments of SIMON would seem, however, to confirm the opinion of MALPIGHI, that the bile is a secretion from venous and not from arterial blood.

That the bile is in part excrementitious, seems to be an opinion that has received the assent of a majority of physiologists—and it is one in favour of which a large mass of strong presumptive evidence may certainly be adduced.

Professors Tiedemann and Gmelin bring forward a number of very ingenious arguments in support of this position. These gentlemen maintain, with many other physiologists, that the liver performs an office supplementary to that of the lungs. They have shown that many of the principles of the bile, such as its resin, colouring matter, fatty matter, mucous and salts, are thrown out of the body with the feces, in the healthy state of the biliary apparatus, or by the urine and into the cellular tissue, when the excretory duct of the liver is obstructed. Those principles all contain a large proportion of carbon combined with hydrogen, and would appear, therefore, to be intended to remove from the blood the excess of that substance, which is introduced into the body with the vegetable part of the food, and which is not thrown out by the lungs. They urge further, in support of this hypothesis, that the resin of bile abounds most in herbivorous animals, whose food contains a great disproportion of carbon and hydrogen. What, also, is highly important, the pulmonary and biliary organs are, in different tribes of animals, even in different animals of the same species, in a state of *antagonism* to each other. The size of the liver, and the quantity of bile it secretes, are not proportionate to the quantity of food and frequency of eating; but inversely proportionate to the size and perfection of the lungs. Thus, in those warm-blooded animals, which have large lungs and live always in the air, the liver compared with the body, is proportionally less than in those which live partly in water. The liver is proportionally

still larger in reptiles which have lungs with large cells incapable of rapidly decarbonizing the blood—and in fishes, which decarbonize the blood but slowly by gills, and above all, in molluscous animals, which effect the same change very slowly either by gills or by small, imperfectly developed lungs. It is also worthy of remark, that the quantity of venous blood sent through the liver increases as the pulmonary system becomes less perfect. In the mammalia and in birds, the vena portæ is formed by the veins of the stomach, intestines, spleen, and pancreas; in the tortoise it receives also the veins of the hind-legs, pelvis, tail, and the vena azygos; in serpents it receives the right renal and all the intercostal veins; in fishes it receives the renal veins, and those of the tail and genital organs. During, likewise, the hybernation of certain of the mammalia, when the respiration is suspended, and no food is taken, the secretion of bile still goes on. Another argument is drawn from the physiology of the fœtus, in which the liver is proportionally larger than in the adult, and the bile is secreted abundantly, as appears from the great increase of the meconium during the latter months of utero-gestation. The last argument is drawn from pathological facts. Thus, in pneumonia and phthisis the secretion of the bile, according to the observations of Dr. Tiedemann and Gmelin, is increased; in diseases of the heart the liver is enlarged, and in the *morbus caruleus* the liver retains its fetal size. In hot climates, too, where, in consequence of the greater rarefaction of the air, respiration is less perfectly carried on than in colder countries, a vicarious decarbonization of the blood is established by an increased flow of the bile. Neither the doctrine here advocated, nor the arguments by which it is supported, are novel; but they certainly are sufficiently plausible to demand a serious consideration.

The third class of functions which take place in the animal system, according to the arrangement of our author, are those of reproduction, or generation.

The consideration of these functions commences with a brief notice of the doctrine of equivocal generation; which, notwithstanding the ingenious arguments that have been advanced in its support, and its adoption to the fullest extent by several eminent physiologists in Germany, and its indirect admission, under certain circumstances, by one or two of the French naturalists, Dr. Dunlison very properly rejects as altogether inconsistent with every well-established fact with which we are acquainted, in regard to the production and propagation of living beings.

The very excellent and lucid description of the genital apparatus of both sexes in the human subject, which the author has given is ren-

dered still more clear and interesting, as well to the student as to the general reader, by the numerous illustrations which accompany it. The execution of these confers great credit upon the artist.

With respect to the nature of the menstrual flux the author adopts fully the opinion of JOHN HUNTER, that the fluid discharged periodically from the uterus of the healthy adult female is one *sui generis*, a true secretion and not blood.

"It is in truth," he remarks, "but little like blood except in its colour; and it may be distinguished from blood by the smell, which is *sui generis*, and also by its not being in general coagulable."

We confess that the facts of the case do not appear to warrant so positive an assertion. We can see no difference between the sanguineous discharge which takes place from the uterus at regular monthly periods, and any of the other exhalations of blood which occasionally occur from the mucous surfaces in the human subject, excepting that the former is effected in the physiological state of the mucous membrane of the uterus as a regular vital function, and the latter are the effect of a pathological condition of the same tissue in that or other parts.

Dr. Dunghlison is not an advocate of the theory which refers the impregnation of the ovum to a sympathetic action produced by the impression made by the semen upon the lining membrane of the vagina or uterus. He contends that it is more probable to suppose that absolute contact between the ovary and the male semen is essential to the fecundation of the ovum.

"This is probably the case with the human female, and if so, the sperm must proceed from the uterus along the Fallopian tube to the ovarium. The common opinion is, that during the intense excitement at the time of copulation the tube is raised, and its digitated extremity applied to the ovarium. The sperm then proceeds along it; in what manner impelled we know not; and attains the ovary. Haller states, that by injecting the vessels of the tube in the dead body, it has assumed this kind of action. De Graff, too, affirms, that he has found the fimbriated extremity adhering to the ovary, twenty-seven hours after copulation; and Magendie, that he has seen the extremity of the tube applied to a vesicle.

"As the *uro seminis* appears to be insufficient for impregnation, it is obviously a matter of moment, that the sperm should be ejaculated as high up into the vagina as possible."

Hence all circumstances, including malconformations of the genital organs in both sexes, which prevent the passage of the semen fully into the vagina are so many impediments to fecundation. "The part then to which the semen is finally applied is the ovary."

In favour of the opinion here advanced we conceive that nearly all the well-authenticated facts, with which we are acquainted, in re-

lation to the function of generation, may be urged. To believe as some writers have asserted that cases do occur in which conception takes place, notwithstanding the orifice of the vagina has been so completely closed by a membrane as to prevent entirely the entrance of the male organ; or in which the os tincæ is entirely obliterated, requires a degree of credulity which we confess we do not possess. All the circumstances of these cases have not certainly been well observed, or accurately detailed. If in any case, at the period when delivery should take place, it has been found that the orifice of the uterus is obliterated, may not this obliteration have occurred during the period of utero-gestation?

After passing in review the prominent theories that have been advanced at different periods to explain the function of generation, Dr. Dunglison concludes as follows:—

“Facts and arguments are strongly against any view that refers the whole process of formation to either sex. There must be a union of materials furnished by both, otherwise it is impossible to explain the similarity in conformation to both parents, which is often so manifest. Accordingly, this modified view of epigenesis is now adopted by most physiologists—that at a fecundating copulation, the secretion of the male is united to a material, furnished by the ovarium of the female; that from the union of these elements the embryo results, impressed from the very instant of such union with life, and with an impulse to a greater or less resemblance of this or that parent, as the case may be; and that the material furnished by the female, is as much a secretion resulting from the peculiar organization of the ovarium, as the sperm is from that of the testicle; life being capable, in this manner, of communication from father to child, without the necessity of invoking the incomprehensible and revolting doctrine of the preëxistence of germs.”

“The admixture of the materials furnished by both sexes, accounts for the likeness that the child may bear to either parent, whatever may be the difficulty in understanding the precise mode in which they act in the formation of the fœtus. It has been attempted, however, by some, to maintain, that the influence of the maternal imagination during a fecundating copulation may be sufficient to impress the germ, within her, with the necessary impulse.

“It is obvious that the effect of the maternal imagination can only be invoked, by those who believe in its agency on the future appearance of the fœtus, in the case of those animals in which copulation is a part of the process. Where the eggs are first extruded and then fecundated, all such influence must be out of the question; and even in the viviparous animal we have seen, that experiments on artificial impregnation have shown, that not only has the bitch been fecundated by sperm injected into the vagina, but that the resulting young have manifestly resembled the dog, whence the sperm had been obtained.”

Although we cannot agree that the opinions expressed in the foregoing paragraph are those admitted by the majority of modern physiologists, yet we are very fully convinced ourselves of their correct-

ness. They are nevertheless accompanied by difficulties not easily removed.

The whole of the sections devoted to the consideration of the development of the fœtus in utero—its anatomy and physiology, are highly interesting from the vast accumulation of facts which they present, and the accuracy and beauty of the illustrations accompanying the text. This portion of the work is highly creditable to the author, exhibiting very great industry in the collection of authorities and skill in the arrangement of his materials.

That we do not agree with all the conclusions of Dr. Dunglison in regard to the various functions of the fœtal state we need scarcely say. On many points connected with this subject we are still in total ignorance, while others are so difficult of investigation that any opinion which may be hazarded in relation to them, can scarcely be viewed in any other light than as plausible hypotheses. Where little positive is known, every one may be allowed to form a theory for himself.

The following sentences will exhibit the author's views of the manner in which the nutrition of the fœtus is effected. These will we apprehend find but few advocates among the physiologists of this country.

"On the whole, it appears at least doubtful, whether the fœtus receives from the mother any nutritive fluid through the placenta, whilst there is strong reason for believing, that, from the very earliest period of fœtal formation to the last, it is nourished on secretions formed at the expense of the mother, and that these are, essentially, the liquor amnii and the jelly of the cord."

And again—

"The most plausible opinion, that we can form on this intricate subject is, that the mother secretes the substances, which are placed in contact with the fœtus, in a condition best adapted for its nutrition; that in this state they are received into the system by absorption, as the chyle or lymph is received in the adult—undergoing modifications in their passage through the fœtal placenta, as well as in every part of the system, where the elements of the blood must escape for the formation of the various tissues."

The nutrition of the fœtus in the manner laid down by our author is opposed by so many and overwhelming arguments, that we are surprised to find one who has exhibited throughout so much caution and discrimination in his examination of the different physiological doctrines, should be inclined to give it his sanction. If any fact, not absolutely demonstrable, in relation to the functions of the human system can be considered as established, it certainly is the nutrition of the fœtus solely by the blood transmitted to it from the placenta through the umbilical vein.

Dr. Dunghlison conceives it to be manifest that some digestion is effected in the fœtal stomach;

“From the presence of the meconium in the intestines, which is probably the excrementitious matter arising from the digestion of the mucous secretions of the alimentary canal.”

If we take a cautious view of all the facts connected with the fœtal economy and compare them with the most plausible views that have been advanced in relation to the functions performed by the liver after birth, it will be rendered very evident, we conceive, that the liver of the fœtus exerts upon the blood brought to it by the vein of the umbilical cord a depurative process, and that the meconium is an excrementitious substance thrown out by the hepatic duct. It is not at all a probable supposition that the mucus of the stomach and intestines undergoes digestion in the fœtal stomach in the sense in which the term is used by our author; or even if it did, that it would give rise to so large an amount of excrementitious matter as that contained in the bowels of most infants at birth.

On the subject of monstrosity we are somewhat surprised that Dr. Dunghlison has not referred to the very luminous views of several of the continental physiologists, especially those of GEOFFROY ST. HILAIRE, BRESCHET and TIEDEMANN.

In considering the remaining subjects connected with the physiology of man, the ages, sleep and its phenomena—the correlation of the functions—the individual differences amongst mankind, the doctrines of life, death, &c., the author has exhibited his industry in the accumulation of facts, and his admirable faculty of rendering every thing of which he treats in the highest degree interesting to his readers. It would require too much space to examine all that he has said upon either of the subjects referred to, though in many instances we should be inclined to differ from him very widely in his conclusions. Generally speaking the student will find this portion of the work to present a very fair view of the present state of our knowledge and of the prevalent opinions amongst the most authoritative physiologists, among which he is left at liberty to make choice of such as he may esteem most accordant with known facts.

Dr. Dunghlison seems inclined to refer all the different races of the human family which now exist to one primitive stock; the essential differences, many of them anatomical, which now distinguish them being attributable to climate, food, occupation and other modifying circumstances. This view, though advocated by many physiologists of the most distinguished talents, appears to us to be altogether un-

tenable. We do not observe these changes to occur now, nor so far back as history and tradition lead us does it appear that they ever did occur. A liberal, indeed the only consistent view of the Mosaic account of the creation and of the deluge, will prevent the most scrupulous from refusing to adopt the contrary opinion—an opinion too, supported by so many imposing facts and apparently conclusive arguments.

We regret that circumstances have obliged us to confine ourselves to so hasty and we confess imperfect a notice of the treatise before us. It is one well deserving of a more extensive and elaborate review. In closing we again express our general approbation of the very successful manner in which Dr. Dunglison has accomplished the task he proposed in the production of the present work—to present, namely, a clear and faithful exposition of the present state of physiological science. Notwithstanding his motto, “*Vastissimi studii primas quasi lineas circumscripsi*,” his details will be found in most instances sufficiently ample for all the purposes of a systematic treatise. We have taken the liberty to record our dissent from some of the views advanced by the author; and in regard to one or two assertions made by him upon the subject of drinks, had we been permitted, we should have expressed ourselves in the strongest terms of condemnation. Notwithstanding, however, we feel warranted in recommending the work to the student of physiology as being one of the very best text books with which we are acquainted; while we are persuaded its very superior merits will command for it a place in every medical library.

F.

ART. X. *Inquiries concerning the Intellectual Powers, and the Investigation of Truth.* By JOHN ABERCROMBIE, M. D., F. R. S.
New York, J. & J. Harper, 1832.

WE have taken up this work, not with the design of examining minutely and analyzing its contents, but for the purpose of turning the attention of the profession to it as a production of rare value on subjects of great interest and importance, and with the further intention of offering some remarks of our own on some of the topics of which it treats. The volume is one which does honour to the age and to the medical profession in particular.

Abercrombie has been long known as a zealous and indefatigable

cultivator of our science, but we were not prepared to find him so profound and comprehensive a thinker, and so close, and logical a reasoner as is the author of this book. He combines in himself some of the most valuable qualities in the constitution of a philosophical mind; perceptive powers acute, discriminating, capable of intense and protracted exertion—reflective powers active, comprehensive, and thoroughly disciplined. Accurate and persevering in observation, he is at the same time endowed with capacity for classification, abstraction, and generalization. His works containing pathological and practical researches on the diseases of the digestive organs and of the brain and spinal cord—researches among the most elaborate and important which are on record in our language—have shown conclusively his talent for detail; while his “*Inquiries*” exhibit in the most favourable manner his powers of combination and deduction. He is at home among particulars, and shows the vigour of a man self-possessed, and in his proper element in the higher regions of philosophy. He wields principles with the facility and dexterity of one long familiar with abstract and general truth. This combination of what has been called *practical* and *speculative ability* is certainly not very common. Those who have been distinguished for the large stores of facts which they have observed and accumulated, have too often lacked capacity to combine and arrange them. They have failed to discover relations and apply principles. Such are mere *plodders* in science, unworthy the name of philosophers—a name which they are often as willing to bear as others to concede to them. On the other hand, such as are able to classify and generalize—those who make general truths the object of their study, not unfrequently fail in the acquisition and application of facts, on that species of knowledge which is derived from observation. They neglect particulars and despise minutiae. Such are apt to be visionaries—castle-builders. Closing their eyes to the world around, they seem more anxious to know what *should* be than what *is*. They rarely contribute any thing to true science. The *philosophy* of which they boast so much is all spurious, the result of their own reveries.

Our author has not the genius of a reformer; he has not those rare endowments of an inventive mind which enable their possessor to leap forward as it were, and, in anticipation of the slow process of observation and experiment, to seize and develop the secret and elementary laws of nature. He is not destined to be the leader of any sect. If a judgment can be formed from his works, he has read thoroughly and pondered deeply the best books in modern philosophy, and made himself master of whatever is valuable of their con-

tents; but, if we mistake not, he has depended more upon his own independent reflexion for correct opinions and principles in philosophy and science, than on the volumes of his library. He seems to have imbibed deeply the spirit of the inductive logic, and adheres with rigid scrupulosity to the rules of investigation laid down by the great modern reformer in philosophy. He is remarkably successful in separating fact and legitimate deduction from hypothesis. If he ventures into the field of conjecture, his flights are always short and the nature of his excursions clearly represented. His conceptions are generally accurate, his judgment sound, his reasoning logical and perspicuous, his conclusions just and convincing. His language is direct and appropriate, his manner dignified and unambitious, his style clear and forcible. On some occasions he is even eloquent. If he occasionally lacks that precision of terms and expression which is demanded in metaphysical discussion, we only wonder at its infrequent occurrence with a man so much engaged in other and very different pursuits.

The volume before us contains a cursory and practical view of the philosophy of the human mind, interspersed with much profound observation and reflexion on the objects of general science and on the mode of investigating physical, metaphysical, and medical truth, illustrated by a frequent reference to facts drawn from the various departments of philosophy. The classification of the mental phenomena is that, substantially, which has been adopted by most modern metaphysicians; and which, when we consider the object of the author, the presentation of abstract and perplexed truths in an intelligible, popular, and interesting manner, is perhaps the best which could have been adopted. The book is enlivened throughout by curious facts and interesting anecdotes, so that the dullest reader can hardly fail to have his attention roused, while the thinking are sure to be led into a train of deep and profitable reflexion. The rules laid down for the cultivation of correct habits of observation and reasoning, and for attaining intellectual excellence, are admirable; while the constituents of a well-regulated and properly-developed mind are clearly pointed out. The *moral* of the work is good. The author is not tainted with that offensive species of scepticism on things of serious import which novices in knowledge are apt to consider as indicative of a thinking and independent mind, and which has been too frequently exhibited by medical men whose exclusively professional habits have afforded them no opportunity for the investigation of moral and religious truth.

One of the most difficult things in the whole compass of our knowledge is to learn the extent of our capacities. In consequence of the want of this species of knowledge, we are constantly attempting things unattainable, wasting our faculties in the pursuit of frivolous or imaginary objects, or in framing fanciful and absurd systems of philosophy. That this may be avoided, and the extent of our powers clearly apprehended and defined, our first inquiry in the search for truth should be *the nature and true objects of knowledge*. These are pointed out and well defined by our author in his *preliminary observations on the general nature and objects of science*. Let these observations be read and pondered by every student of physical, mental, and medical science. The long-agitated question—the *materiality or immateriality of the soul*—is here considered, and the subject placed in its true light. The interminable and bitter controversy which it has called forth is seen to be, as it truly is, chiefly a quarrel about terms which have no meaning—a matter having no bearing upon human happiness, morality, or religion. The opinion entertained by some, principally theologians, that this question involves another of far greater moment—the mortality or immortality of the thinking principle—is entirely erroneous. The evidence for a future existence rests on other and far different grounds, and is not to be affected by any arguments derived from metaphysical discussions on the nature and identity of essences. We make some quotations from the doctor's concluding remarks upon this subject which may afford a specimen of his manner of writing and thinking.

“There are in the lower animals many of the phenomena of mind; and, with regard to these, we also contend, that they are entirely distinct from any thing we know as the properties of matter,—which is all that we mean, or can mean, by being immaterial. There are other principles superadded to material things, of the nature of which we are equally ignorant; such, for example, as the principle of vegetable life, and that of animal life. To say that these are properties of matter is merely arguing about a term; for what we mean by matter is something which is solid, extended, and divisible. That these properties are, in certain individuals, combined with simple or vegetable life,—in others, with animal life, that is, life and the powers of sensation and motion,—and in others with animal life, and certain of those properties which we call mind,—are all facts equally beyond our comprehension. For any thing we know, they may all be immortal principles; and for any thing we know, matter itself may be immortal. The simple truth is, that we know nothing on the subject; and while, on the one hand, we have no title to assume an essence to be mortal because it possesses only the properties of matter; neither, on the other hand, have we any right to infer an essence to be immortal, because it possesses properties different from those of matter. We talk, indeed, about matter, and we talk about mind; we speculate concerning materiality and immateriality, until we argue ourselves

into a kind of belief that we really understand something of the subject. The truth is that we understand nothing. Matter and mind are known to us by certain properties; these properties are quite distinct from each other; but in regard to both, it is entirely out of the reach of our faculties to advance a single step beyond the facts which are before us. Whether in their substratum or ultimate essence, they are the same, or whether they are different, we know not, and never can know in our present state of being. Let us, then, be satisfied with the facts, when our utmost faculties can carry us no further; let us cease to push our feeble speculations, when our duty is only to wonder and adore.

"These considerations, while they are directly opposed to the crude conclusions of the materialist, also serve to show us how much the subject is removed beyond our limited faculties; and it is not on such speculations, therefore, that we rest the evidence for a future state of being. We know nothing of the nature or the essence of mind; but whatever may be its essence, and whatever may be the nature and extent of that mysterious connexion which the Deity has established between it and our bodily organization, these points have no reference whatever to the great question of its future existence. This is a principle which seems to have been too much lost sight of in the discussion of this subject, namely, that our speculations respecting the immateriality of the rational human soul have no influence on our belief of its immortality. This momentous truth rests on a species of evidence altogether different, which addresses itself to the moral constitution of man. It is found in those principles of his nature by which he feels upon his spirit the awe of a God, and looks forward to the future with anxiety or with hope;—by which he knows to distinguish truth from falsehood and evil from good, and has forced upon him the conviction that he is a moral and responsible being."

The medical man has peculiar facilities for the study of mind. He has enlarged opportunity for watching its operations in every condition and circumstance, and in every stage of development and decline. The close intimacy to which he is admitted with his fellow-beings, and the ease with which he finds access to all the secret springs of the head and heart, give him a field for observation, an acquaintance with phenomena and numerous data for reasoning, which others do not possess. He is a frequent witness of those partial analyses of the thinking principle, (the only kind of *physical* analyses of which it admits,) caused by violence, disease, organic conformation, and all those influences exerted by body or mind, by which some faculties or laws of thought are abolished and others left isolated, as it were, the objects of investigation apart from the rest. He is also more fully aware than others of the manner in which the human mind is illustrated and reduced to its elements by comparing it with the mental principle as it is developed in the lower animals, or as it is compounded and decompounded as we ascend or descend the scale of organized beings. His intimate knowledge of the animal organism, which exerts a controlling influence over the operations

and developments of mind, enables him to analyze thoughts and feelings, to trace phenomena to their sources, and to seize and develop principles, with a certainty, which, without such an acquaintance, would be impracticable. Of all absurdities, there is none greater, nor seemingly more obvious, than the attempt to study mind in ignorance of the laws of organized body; and yet, mind has been studied thus by many of those metaphysicians who have given creeds to the world. The crude speculations and the reasonings of these self-dubbed philosophers have so little reference to the human organism, that, were our knowledge of the subject derived from their writings, we should hardly know that the spirit was embodied. In passing, we would remark, that some of the most illustrious of those who have distinguished themselves as successful analysts of mind have been among those who have been educated to the medical profession. We need only mention the names of LOCKE, HARTLEY, THOMAS BROWN, and the late lamented MACKINTOSH.

But an acquaintance with mental philosophy is as important to the medical man as his facilities for studying it are great. There is an influence of mind upon body as well as of body upon mind. The code of laws which governs the one is inclusive of that which governs the other, and neither can be studied and understood by itself. It is absurd then, to undertake to number and estimate the forces which act upon the physical system, when some of their elements, (the influences of mind,) are left out of the account. Besides, the science of mind *as a science* has some striking points of resemblance to that of medicine, which should entitle it to the attention of the student of the latter. Equally unlike the physical sciences, they present similar obstacles to the investigation of those who pursue them, arising out of the complexity of their phenomena and the difficulty of recognising and analyzing them, the embarrassments with which we meet in tracing the relation of cause and effect, and in generalizing and deducing principles. They mutually illustrate each other. They qualify reciprocally for the study of each other. The caution, acuteness, and capacity for fine analysis which the physician acquires by the investigation of mental phenomena and an acquaintance with mental causation, cannot but contribute to qualify him eminently for the successful pursuit of medical science. Further, the broader the field of knowledge which a man has explored, and the more numerous the departments of philosophy he has cultivated, the more power, comprehensiveness and energy does the mind acquire, and the greater and more momentous are the results which may be expected to flow from its application to any particular branch of science.

We would recommend to the medical profession the section on Reason and Judgment, in the work before us, as one of the most elaborate in the volume. We would particularly commend to them for perusal that portion of it *on the use of reason in the investigation of truth*. Dr. A.'s remarks upon Dreaming, Somnambulism, Insanity, and Spectral Illusions, are extremely interesting. All the important facts and circumstances relating to these topics are brought forward and arranged in lucid order and collated with care and ability. The mystery which still envelopes these subjects, notwithstanding all the industry and talent which have been devoted to their elucidation, is proof to our mind that we have hardly yet begun the analyses of the mental principles. But we hasten over all these parts of the volume and come to a subject which has a more *direct* bearing upon our profession.

That portion of the "Inquiries" devoted to the investigation of the causes of the uncertainty of medicine, and to the application of the rules of philosophical inquiry to medical science, is admirable, and well deserves the attentive perusal of every physician. We do not recollect to have seen any where, within the same compass, so philosophical and lucid a statement of the sources of the embarrassments with which the medical man is perpetually conversant, and of the means by which he is to avoid and overcome them, as is here contained. Were the rules for inquiry which are here laid down thoroughly understood and rigidly observed, medicine would lose much of the empiricism and absurdity which have hitherto characterized it, and the visionary hypotheses which have encumbered and deformed it. It would cease to be a just matter for the merriment and sarcasm of wits and satirists. It would soon be established on firmer and more dignified ground. It would take a stand by the side of the physical sciences; and though it might long remain far in the rear of them in respect to exactness and perfection, it would gain a point which would place it on a basis firm and immutable—a point from which it might start forward in the career of improvement with the certainty of perpetual progress. Its advancement might be slow; it would be slow;—but it would still move onward. We should never again have the mortification of seeing it tracing back its steps to the shades from which it first emerged.

It is the carelessness of observation so conspicuous among the cultivators of medical science, and the erroneous mode of reasoning which they adopt, which are the cause of all the revolting and retrograde movements of our art. Until these things are better understood and oftener practically acknowledged than they have been in past ages and are in the present, by the great mass of our profession, we

despair of seeing medicine in that place of honour which belongs to it, seated securely on an enduring and immoveable foundation, and freed from the shackles which visionaries and empirics have imposed upon it. We are sickened by the frequency with which we are compelled to witness the outrage committed on philosophy and all the just rules for the investigation of truth by most of those who pretend to give us theories of physic and principles of practice. We are weary of those hypotheses, invented by professors and others, and promulgated with all the confidence and authority of established principles, by which a particular and perhaps doubtful fact is made general, and a frame-work reared upon it which the builder promises shall be as firm as the rocks and as enduring as time—hypotheses which are to bring order out of confusion, and make the practice of physic as simple, as easy, and as certain as the mechanic arts. We say we are weary of all this. But how is the evil to be corrected? *By improving our method of observation, and by the adoption of the inductive mode of reasoning.* Let this be done, and a beneficial influence will soon be observed. Let the true objects of medical science be fairly comprehended, and let these be pursued without deviation or relaxation. Let facts before they are admitted be thoroughly scrutinized and their authenticity established. Before an uniform relation between events is supposed, let the utmost patience, and circumspection and sagacity be used, and every means devised, to separate what is contingent from what is necessary, and to distinguish true from false causation. In attempting the classification and generalization of particular truths; let the design of these processes be fully understood and conducted with all possible care, discrimination and judgment. When a general fact or principle is deduced, it should be with that keen and comprehensive glance, that philosophical and deliberative spirit which the occasion requires, and which the dignity and importance of the subject demands. When, after having passed through all the preliminary steps, a theory has at last been framed, let every opportunity be embraced for its verification, and for testing its claims to legitimacy. Here the *synthetic* process can be used with great effect. The theory should be diligently applied for the solution of all those facts which it professes to include and explain. The whole field of our knowledge should be faithfully explored, either for the purpose of proving or disproving its claims to generality. When, from the scantiness and heterogeneous nature of our materials, we are unable to form a theory, and for the sake of giving assistance to the memory are induced to invent an hypothesis, the nature of an hypothesis should be well understood. It should be considered not as truth, but as an instrument of truth—a kind of scaffolding raised

for the purpose of aiding our operations, to be removed as superfluous when the building is completed, or the end answered for which it was erected. In every part of the investigation to which allusion has been made, prejudice, opinion, regard for authority, and every thing which can be supposed to lead to erroneous results, should of course be dismissed, and the inquiry conducted in that spirit of candour and impartiality which the love of truth imparts.

But we fear there is little prospect, for ages to come, of the general adoption of this rigid and somewhat painful method of inquiry. It is difficult and intolerably irksome to the indolent and the bustling portion of the profession, who care more for their popularity and the extent of their business, than the interests of science. It employs much time, which might be profitably spent in the acquisition of patients, and unfits the mind, as it were, for all the trickery and quackery which are used with such signal effect in advancing personal reputation. Besides, it promises none of those brilliant results which please the fancy of the imaginative, flatter the pride of the ambitious, and command the admiration of a staring world. It affords none of those short and comprehensive rules, of which the present age is fond, which render reflexion superfluous. It does not commend itself to the attention with the force of a labour-saving process—a kind of process which modern economists are anxious to introduce into the labours and operations of mind. The intense and protracted thought which it demands, ensures its rejection by the frivolous and superficial, the busy and the aspiring, the lazy and the economical. It comes recommended by nothing but its dry utility, and the truth which it promises to unfold.

The nature of investigation and the mode of conducting it are of a similar kind in medical and in physical science. Our ultimate object, and the way to arrive at it, are the same. Our design, in either case, is to detect and develope principles. We begin with particular truths, and ascend by successive steps to those which are more general, until at last we arrive at elementary and universal laws. Though the inquiry is the same in all its parts, the degree of success attending it is different—a difference which has procured for medical science the distinctive epithet *uncertain*. Let us endeavour to ascertain the cause of this difference.

That a science be certain, it is required *that its principles or laws be few, independent and universal; readily ascertained and susceptible of easy application.* In *physical science* the principles are few. All the phenomena of the material world are seen to result from the operation of a small number of elementary laws. These laws are, as it were, *independent* of each other. Each is confined within its own

proper sphere of action, and produces effects of its own kind, unembarrassed by influences from without. They are *universal*—coextensive with material existence. The universality and independence, the simplicity and unity of operation of these laws is such as justly to admit the division of physical science into many distinct departments, each defined by accurate boundaries, and susceptible of cultivation apart from the rest. Thus, opportunity is offered for that division of labour which has contributed so much to the advancement of every branch of knowledge into which it has been appropriately introduced. These principles too, for the most part, are *easily ascertained*. As their combinations, (from the smallness of their number,) cannot be numerous, the resulting phenomena are little complex, and of course admit of easy analysis. Besides, their operations are carried on in open day, and are presented in a state of entireness. The whole field, and the entire chain of causes and effects are before the eye at once. On attentive survey, such a degree of simplicity, uniformity and homogeneity is discovered in the presenting phenomena, as readily to suggest those primary laws which are the movers in the scene. Further, these principles, when once ascertained, can be *applied* with much facility and certainty to the solution of such events as may occur under whatever circumstances. Their individual and combined force often admits of easy calculation, so that, in any combination, their separate and aggregate influence may be accurately estimated and compared with actual phenomena. These forces may be so measured, that unerring rules may be founded on them, expressed in figures or in propositions, which may be applied to practice without danger of error by those who are ignorant of the grounds on which they rest.

In *medical science* there is a striking difference in all these conditions of certainty. The principles concerned are numerous, mutually dependent on each other, and individually of limited influence. Suppose the object of our inquiry to be to ascertain a particular physiological or pathological state. This state is the general result of the combined operation of an almost innumerable number of elementary principles. These principles are made up of the laws of matter, the numerous laws of mind, and the more numerous laws of organized body—making an aggregate number of principles of different and variable force, individually and collectively, which may well puzzle an experienced calculator to estimate. These are all interlaced, as it were, in their operations, each being linked in with the others in a work of mutual support and dependence, producing phenomena by their combination, which, in the complexity and multiplicity of their producing causes, have no parallel in physical science. Such prin-

ciples, of course, can have no claims to universality. Each, considered separately, has a very subordinate, perhaps an inappreciable influence. Nor can such principles be studied individually, and medical science divided into distinct departments, each acknowledging a single governing law, and susceptible of cultivation by itself. The natural relation which they sustain to one another, and the common nature of the work in which they are engaged, precludes the possibility of this. The result of their compound and concurrent operation is a single science, which must be studied in all its comprehensiveness by a single man. When the primary principles are so numerous, their combinations so multiform, and the resulting phenomena of such countless variety, the difficulty of analysis is of course increased. The process of discovering general laws is more lengthy, more complex, more perplexing, and less satisfactory in the results. Besides, the phenomena from which we are to deduce laws are manifested by obscure and equivocal signs, and are presented, not in an entire series, but in broken and unconnected portions. Thus is increased in no slight degree the embarrassments which attend the attempt to trace effects to their causes, and to determine ultimate laws; and when these principles have been ascertained, their application to the solution of phenomena which are presented to us, is always embarrassing. Their variable force cannot be subjected to rigid calculation. Their essence cannot be compressed into a few broad propositions, which may be used in the explanation of new events—propositions which may be applied to the verification of theories, and used as tests of truth and falsehood. They yield none of those unerring rules, of which pure physical science is so fruitful, which may be used with as much facility and success by the mere mechanic as the philosopher.

The numerous peculiarities of medical science, above alluded to, might all be included, without any violence, under two general heads. Medical may be said to differ from physical science, 1st, in the greater multiplicity of its elementary principles; and 2d, in the greater obscurity, incompleteness, and more equivocal nature of its phenomena as presented to our perceptive faculties. From these primary differences flow all the others. The principles concerned have a mutual dependency and a limited influence *because* there are numbers concerned in the production of the same phenomena; and they are with difficulty ascertained and practically applied *because* they are numerous, and *because* the phenomena which their combined action produces are imperfectly and interruptedly presented to our senses.

The apparent want of uniformity of relation between cause and effect, so conspicuous in medical science, and so well considered by

Dr. Abercrombie in the work before us, results from the multiplicity and complexity of the laws which regulate medical phenomena, and the embarrassments we meet with in obtaining an accurate and complete acquaintance with them.

The principles which have been noticed are naturally so justly balanced—so well proportioned in their individual and combined force, and so accurately fitted the one to the other and to the whole, as to work harmoniously together, and to produce that wonderful series of effects which constitute the phenomena of life. Such movements are said to be *normal*. When this just balance is lost and the natural harmonious action disturbed, the movements which follow are said to be *abnormal*. This is *disease*—that which it is the object of the physician to remove, or *cure*. In order to effect this, it is necessary to understand what new modifications and combinations these principles have undergone in the *abnormal* state. The medical man then endeavours, by the use of certain agents within his power, so to act upon these ascertained and modified principles, as to break up unnatural associations, and to introduce among them again the proportion and harmony of health. Here he has to encounter all the difficulties which we have been considering. The ability to overcome them constitutes his *skill*. The exercise of his skill constitutes his *art*. His art is a *scientific* one, that is, it is based on *science*. Its perfection depends on the perfection of that on which it is based.

From what has been said may be learnt the real nature and extent of the embarrassments with which the physician meets in the study and practice of his profession. They are truly formidable, and of such a nature as will long, perhaps always, render the epithet *uncertain* appropriate to medical science; but they are not wholly insuperable. They will be found progressively, but gradually, to yield to industry, perseverance, philosophical caution and sagacity, and that inductive mode of inquiry which has already been alluded to and recommended. They cannot resist the force of that untiring observation and that continued and deep reflexion which are characteristic of every one who is qualified for medical research.

The comparative view of medical and physical science which has been taken, renders the absurdity of those attempts conspicuous, which have been made by the speculative and visionary to discover universal laws in medicine—laws which might compare by their independence, and by the breadth of their influence, with those which NEWTON and others have discovered in the material world. No such principles exist, and the search for them is not only fruitless, but contrary to the true spirit of philosophy; and besides, occasions an expenditure of time and talent which might be advantageously de-

voted to more worthy and attainable objects—the discovery and development of truth. If the ingenuity which has been thus wasted upon things of the imagination, and worse than wasted, (for it has served to rear fabrics of falsehood which it has required the labour of ages to demolish,) had been turned into the channel of legitimate medical inquiry, it would have brought accessions to the cause of truth and given an impulse to our science which would have been felt throughout all future time. To attempt to reduce the number of principles concerned in the production of medical phenomena, or to make a subordinate law an universal and independent one, is as vain as the endeavour of the alchymist to transmute all metals into gold, or to discover an universal medicine. Viewed in this light, how superlatively absurd do the efforts of those system-builders appear, who profess to explain all the phenomena with which a physician meets by a single limited, perhaps assumed, principle. How ridiculous the rage for recipes and specifics, so abundantly manifested in all ages of the world, and by many who would spurn the appellation of *quack*;—as if disease were an unity—the result of a single condition of the system and of a single primary law.

The principles concerned in the production of medical phenomena are of a *peculiar* kind, and specifically distinct from all others. They are not identical with those which govern the material world, nor have they the remotest affinity to them. On the contrary, to these last they are diametrically opposed in all their characteristics, both in their intrinsic nature and in their effects. At the same time and place they are perfectly incompatible, the one with the other. They are respectively independent of each other, having nothing in common. At every point at which they come in contact, there is manifested a mutual hostility. Organic laws only preserve their individuality by annihilating or suspending the laws of matter. The human system never yields to the dominion of the latter until the former have withdrawn their influence, or life taken its departure. Nor can the living principle continue where physical force has begun its reign. It is true, the leading elementary principles of physics are among the numerous *elements* which enter into the composition of vital principles; but in this combination individual existence and specific character are lost. The particular tendencies of *elements* are overruled. Vital principles, considered as the real moving forces of the human organism—the producing causes of vital phenomena, have as little resemblance or affinity to physical laws, (as we see them manifested in the material world,) as the most perfect organized being has to any of the inorganic masses which surround us.

An ignorance of the specific nature of vital principles has been a

most productive cause of error and absurdity in medical science in every age of the world. The partial or complete introduction of physical laws to explain the movements of the human system and the phenomena of disease has constituted a portion of almost every theory of physic which has appeared from the days of Hippocrates to the present time. We see this error conspicuous in the speculations of the chemical and mechanic sects, the eclectics, and the ancient and modern humoralists. We can discern abundant traces of it even in writers of our own day. Indeed, it has prevailed to such an extent, and for so long a period, that our very language has become corrupted and loaded with false doctrine; so that, it is often impossible to express the simplest fact in medicine, without using a phraseology which involves some hypothesis assuming the identity of physical and physiological laws. This hypothetical language serves powerfully to extend and perpetuate the error in question, as the mass of the people and unthinking medical men rarely distinguish figurative from literal expressions. Even the reflecting part of the profession often experience embarrassment from the same source, and are sometimes led astray. So well are we convinced of the extensive influence of words and forms of speech in transmitting the crude and false notions of former times, that we should esteem the man who had succeeded in abolishing all accustomed words and phrases involving falsehood and hypothesis, and in substituting for them such and such only as should convey literal truth, as the greatest benefactor medical science has ever received. It is true, language is not susceptible of all the precision we could wish when employed as the medium of medical truth. We are often obliged from a paucity of words to use comparison and circumlocution when speaking of the phenomena of disease, &c. In such cases, a door is always left into which error may find its way. But language as used in medicine admits of vast improvement, as it respects the directness and precision of its terms. Much of the laxity and verbiage which at present belongs to it, and which unfit it for the purposes of accurate scientific research, might be readily dispensed with. The number of those verbal falsehoods, with which we are every day familiar, might be greatly reduced. This has already been done, if we compare the present age with the past. To be convinced of this, we need only consult the medical writings of those who lived one hundred years ago. Among them we may often detect a literal error or an unfounded hypothesis in almost every sentence. This is more rarely the fact now in more modern works, though it is unnecessarily frequent even yet. Language is imperfect and equivocal enough at best. For the purposes of medical science, it should have all the precision of which it is susceptible. Facts should never be

obscured or misrepresented by words which involve an hypothesis, or verbal falsehood, or which have acquired a fixed and technical meaning in some science having no analogy to medicine. Truths should be expressed in terms as brief, as direct, and as unequivocal as possible. A figure should never be admitted when accuracy is required. That which sometimes gives a charm to eloquence and poetry is the bane of true science.

Thus we have attempted to examine, in as brief terms as possible, the nature and peculiarities of medical science. We have endeavoured to trace the sources of the difference between it and the more accurate of the physical sciences. We have found this difference in the elementary principles which belong to each. This inquiry has led us into an analysis of some considerable difficulty, and which, we fear, may have been too fine and abstract for the tastes of some of our readers. If, notwithstanding all our endeavours at perspicuity, we have sometimes appeared obscure, or our meaning has seemed involved, we beg the reader will consider the intrinsic difficulty of the inquiry which has engaged us, and the imperfect nature of that medium and instrument of thought—*language*—by which we have been obliged to conduct it. The limits to which we had determined to confine our remarks, have precluded the frequent introduction of that kind of illustration, which, when skilfully employed, saves so much thought to the reader. To illustrate fairly, by an extended application to facts, the truths which have been considered, would require the space of a volume. We have made allusion to some of the errors, with their consequences, which have arisen from an ignorance or misunderstanding of the nature of medical science, and of the peculiar and specific character of the principles which concern it. We have done this as a specimen of the bearing which a right view of the subject under consideration has upon medical inquiry, and the results which flow from it. In order to discover the full force and extent of this bearing, it will be necessary to consider the relation of the principles which have been developed to every department of medical inquiry, both as it has been and as it should be conducted. This our present limits will not allow us to do. The reader may finish what has been begun.

The truths unfolded by the analysis above alluded to form the ground-work of all true medical science, and are the foundation of every improvement which it receives or admits. Without a knowledge of them, no investigation can ever be successful, whatever be the mode in which it is conducted. In some respects they resemble the first truths, or the fundamental laws of belief, of logicians; they

must be ascertained before an inquiry can begin, and taken for granted at every subsequent step of its progress. To remain ignorant of them, or to mistake their nature, is to admit an element of error in every relation of an effect to a cause which is assigned, or in every conclusion which is drawn. To suppose that all medical phenomena may be reduced to the operation of a single primary and independent principle, or to assume the identity of physical and physiological laws, is to commence with a falsehood which has a bearing upon every part of the investigation which follows, and which, so far as it is admitted into practical detail, leads to results characterized by unmixed error.

We close these remarks by referring again to that portion of Dr. Abercrombie's volume which suggested them. We transfer to our pages the concluding paragraph. After laying down the rules which should guide us in conducting our own medical inquiries, and in examining the investigation of others, the doctor says:—

“The rules thus shortly proposed, I submit as those which ought to guide us in all our inquiries. Without constant attention to them, numerous facts may pass before us from which we can derive no real knowledge; and many ingenious and plausible doctrines may be presented which tend only to lead us into error. In the same manner, the benefit which a physician derives from his own opportunities of observation, in common language called his experience, is not in proportion to the period of time over which it has extended, or the number of facts which have passed under his view. It must depend on the attention with which he has observed these facts, and traced their relations to each other; on the anxiety with which he has separated incidental relations from those which are uniform; and the caution with which he has ventured on assuming the relation of cause and effect, or has advanced to general principles. It must depend, further, on the jealousy and suspicion with which he has received even his own conclusions, and the care with which he has corrected them from time to time by further observations. Finally, it must depend on the judgment with which he applies the knowledge thus acquired to the investigation and treatment of new cases; by tracing promptly the points of affinity between the case under his view and those cases on which his knowledge was founded; by discovering real points of resemblance where there is an apparent difference, and real points of difference where there is an apparent resemblance. The further a physician advances in this course of rigid inquiry, he becomes more sensible of the difficulties with which his science is encumbered, more suspicious of all general conclusions, and more anxious to bring them to the test of minute and extensive observation; in particular, he learns to exercise more and more caution in considering any one event in medicine as the cause of another. In real acquisition, consequently, his progress is slow; for much of his improvement consists in detecting the fallacy of systems which he once considered as established, and the instability of principles in which he once confided as infallible. But these discoveries prepare the way for his actual progress, and the conclusions at which he does arrive then fall upon his mind with all the authority of truth.”

H. B.

BIBLIOGRAPHICAL NOTICES. ‘. .

XI. *Rapport sur deux nouveaux procédés de M. BAUDELOQUE, Neveu, pour conserver la vie à l'enfant quand il se présente par les fesses, les genoux et les pieds; fait à l'Académie Royal de Médecine.* Par M. HERVEY DE CHEGOIN.

A Report on two New Propositions of M. BAUDELOQUE, Jr. (Neveu,) for Preserving the Life of the Fœtus when it Presents the Breech, Knees or Feet. Made to the Royal Academy of Medicine, by M. HERVEY DE CHEGOIN.

- It being generally acknowledged, that the child during parturition is much more endangered when it presents the *pelvic* than the *cephalic* extremity of the fœtal ellipse, the question as to the nature and cause of this difference is of importance. M. Baudelocque, Jr. in a late communication to the Royal Academy of Medicine, maintains that the cause of death in pelvic presentations is *always the same*, viz. the interruption of the circulation from the mother to the child; and that the effects of this interruption are *always the same*, viz. a sanguineous congestion in the brain and liver, with or without effusion at the base of the brain. He considers, therefore, the asphyxia and the apoplexy of newborn infants, to be two degrees of the same state, there being in both, sanguine congestion of the brain and other interior organs.

The cause of the interruption of the circulation between mother and child, he refers exclusively to pressure on the cord by the body, but especially by the head of the child in the pelvis.

- Founded on these views he recommends two modes of procedure in cases where the head is retained after the delivery of the body, and the child's life thus jeopardized. He proposes to divide the umbilical cord, and allow it to bleed; and then to excite respiration immediately, even while the head may be in utero. For this last object, he suggests the use of a long silver canula, with numerous perforations, by means of which atmospheric air may penetrate into the uterus, and also of a shorter canula which may, when requisite, be introduced into the mouth of the fœtus. In eleven infants, presenting the feet, the umbilical cord was divided as soon as the pulsations became feeble, and before the head was delivered; the children were born alive. In three cases, the division of the cord was not made, and the children were born dead. The attempt to excite respiration was not made in either of the above cases; but M. Baudelocque conceives it may sometimes be requisite. It may well however be doubted, whether respiration can possibly occur when the head is fixed, as the case supposes, in the superior straight of the pelvis. But that respiration may, under peculiar circumstances, occur, and even cries be elicited while the child is in utero, a point hitherto much disputed and generally denied, seems to be proved by an experiment of M. Baudelocque. In the case of a face presentation, after having punctured the membranes, he passed a canula into the mouth of the child, and inflated the lungs. He and his assistants, M. Martin, a physician, and Madame Chaumonot, a midwife, distinctly heard, for the space of a minute, the respiratory noise. The infant was eventually delivered alive by means of the forceps.

Giving all confidence to the facts reported by M. Baudelocque, it would seem that in some cases at least, it would be useful to divide the umbilical cord before the delivery of the head, to relieve congestion, and to prevent effusion and death. But, can these cases be always ascertained? may not the child perish from the loss of blood, owing to the time required for the delivery of the head? and especially is it necessary to inquire whether, as M. Baudelocque supposes, this congestion always exists? or whether on the contrary, it be not often true that the child is already in a state of anemia, where the loss of a small quantity of blood would be necessarily fatal? The questions also arise whether other causes may not be operative in the destruction of the fœtus, independent of interruption of the placental circulation; and whether such interruption depends on the pressure of cord as has been usually supposed; or on some other circumstance, connected with pelvic presentations?

M. Hervey de Chegoin, in a report to the Académie, on the communication of M. Baudelocque, has noticed several of the above questions; and expressed his doubts on many of the positions assumed by the author of the essay.

In presentations of the inferior extremities, and of course in the operation of version by the feet, do not fœtuses often perish in consequence of the force applied by the accoucheur, rather than by pressure on the cord? M. Baudelocque and Madame Lachapelle would say, no; because they have met with cases where great force had been exercised, even to the tearing of the vertebral ligaments, and yet the child has survived. The reporter however doubts the legitimacy of the deduction, when the results of cases in which little or no traction has been exercised, are compared with those in which much force had been employed. Certainly few can doubt the injurious effects of traction on the lower extremities and body, in cases where the head is retained, and the consequent danger to which the child is exposed; especially when, as is not unfrequently the case, from ignorance or inattention, the neck is also twisted. The only wonder which can be excited is, that all do not perish under this management. Hence, as the effect of traction, when the head is entering or engaged in, the superior strait, is almost always injurious by causing the head to present unfavourably, the practice, however general or sanctioned by authority, should be abandoned; no force of any amount should, at this stage of the operation at least, be applied to the trunk of the infant; but, if any assistance be required, it should be judiciously directed to the head itself.

There can be no doubt that M. Baudelocque is in error in referring the interruption of the circulation between the mother and child, in all cases to pressure on the cord alone; for as the reporter remarks, in pelvic presentations generally, after the trunk is delivered, the uterus has so contracted that a separation of the placenta from the uterus is very frequently effected; and in some cases, especially where the head has descended into the excavation, the uterus may be emptied not only of the child, but also of the placenta. In all such cases, death must soon occur from the cessation of the placental functions, independently of pressure on the cord.

What is the result of compression of the cord? M. Baudelocque contends that in all cases the result is *plethora*, whence apoplectic congestion and effusion as demonstrated by dissection. But, says the reporter, this is a surprising assertion; for if the pressure be made equally on the vein and on the arteries of the cord, the fœtus it is true no longer sends blood to the mother; but it also no

longer receives any from the mother by the umbilical vein. The exit of blood is prevented, but the supply is also cut off; therefore there can be no increased quantity. M. Chegoin however carries this argument much further, and contends, that as the circulation of blood in the vein is effected only by the agency of capillary vessels, while the passage of blood through the umbilical arteries is facilitated by the contractions of the fetal heart, it follows that when the vessels of the cord are equally pressed upon, the course of blood may be arrested in the vein but not in the arteries where the momentum is greater; in other words, that the exit of blood is continued while the supply is arrested. Hence, the fetus, instead of being plethoric, may actually perish for the want of blood, and this condition, M. Chegoin intimates would be more likely to ensue when the placenta was separated from the parietes of the uterus. This apparently specious theory is supported by the well-known fact, that children are born presenting externally very different appearances under the circumstances now contemplated. In some, the child is livid and swelled, particularly on the head, neck, and chest; the cord is large and tense, and on being cut, the blood issues with much impetus. In others, the infant is pale and exhausted, its limbs flaccid, features contracted, cord small and pallid, and when divided furnishing little or no blood. The former is regarded as a state of apoplexy; the latter as a state of anemia, of syncope, or asphyxia.

We must however dissent from the idea of actual plethora or anemia in those cases where death suddenly occurs, the mother and child having been previously in a natural and healthy condition. Independent of many facts which might be adduced in opposition to these theories, both opinions seem to be predicated on an erroneous view of the fetal circulation: viz. that the blood of the fetus passes indirectly by means of the umbilical arteries and maternal veins to the mother, and the blood of the mother indirectly by maternal arteries and the umbilical vein to the child; so that blood might be lost by the child from its arteries when the supply by the vein was arrested, whence anemia; or, that the supply might be continued from the mother while the exit by the arteries of the cord was diminished or suspended, whence plethora. But we thought that these views had been abandoned by good physiologists. There is satisfactory proof that there is no direct or indirect communication between the blood of the mother and that of the child. The latter forms its own blood in utero out of materials furnished by the parent, as certainly as the chick forms its own blood in ovo, out of materials there provided. The blood from the umbilical arteries of the child passes to the radicles of the umbilical vein, and not to those of the maternal vessels, and hence any variety of pressure on the arteries or vein of the cord can have but a comparatively trifling influence on the quantity of blood at any time in the body of the fetus.

If therefore neither plethora nor anemia be the cause of death when pressure is made on the cord, whence the source of mischief? Very many have referred it to the simple interruption of the circulation, but this is not sufficient, as death occurs too suddenly to admit of this explanation; and moreover, the anatomical structure of the fetus is such as to allow a perfect circulation of blood even if the cord be completely obstructed. The injury therefore must be referred to some other source, and as this death occurs suddenly, and is usually accompanied with great venous congestion, and may be prevented by establishing at

once the respiratory process, it may be referred to the suspension of the purifying influence of the placenta on the blood, the placenta acting as lungs to the fœtus, how is unknown. Hence, as congestion of venous blood follows the suspension of the respiratory process, congestion follows the suspension of the placental influence, and may be succeeded by the effusion of blood as testified by Baudelocque and others. It is difficult however to account for the opposite condition of the fœtus, or to specify the particular circumstances which produce a state of congestion or of syncope. There are wanting a very careful observation and collation of facts on this subject. But if it be true that children are born sometimes in the one, and sometimes in the other condition, the practice of dividing the cord in *all* cases of delay must be very dangerous, even should future experience confirm the recommendation of M. Baudelocque in cases where congestion can be demonstrated to exist.

Again: should the hypothesis of the author be correct, that in all cases of asphyxia of new-born infants, there is congestion of some internal organ and often effusion, yet the practice he recommends must be injurious, as the general circulatory system is depressed and emptied. The local congestion, in such cases, will not justify general depletion. Infants are often recovered from this state, not by depletory measures to which none resort, but by internal and external stimuli which sympathetically excite the respiration and circulation.

It is a difficult matter to determine, by external appearances, the precise condition of the internal organs in this asphyxiated condition of new-born infants. Baudelocque insists that congestion always exists, and often effusion, and appeals to his dissections where such changes were invariably perceived; but the condition of the organs after death, as regards their vascular fulness, is no certain index of their state before death; and, as infants born in this state of asphyxia are frequently preserved by judicious and persevering efforts, we must conclude that such congestion and effusion either do not exist, or that they are less injurious than usually supposed; and moreover, that stimulating, not depletory measures are suitable in such supposed cases of congestion.

As to the apoplectic state above described, all will unite in the importance of evacuating the blood—a practice commonly resorted to and which may be employed as M. Baudelocque recommends, even before the delivery of the head. An additional remark however is of importance, that this depletion should be followed up by stimuli to the surface, nostrils, rectum, &c., as in cases of asphyxia; for the actions of the heart and arteries are feeble, and the surface cold in these apoplectic cases evincing depression of arterial action with the fulness and turgescence of the venous system. Hence while we empty the veins, the blood should be determined to the arterial system, that the natural actions may be fully reëstablished.

On the whole, we agree with the reporter, M. Chegoin, that death in pelvic presentations is not simply the result of pressure on the cord, but may also ensue from other causes, as injury to the spinal marrow, detachment of the placenta, &c.; that general plethora does not exist when such interruption occurs; neither, we would add, is there any deficiency of blood in the fœtus; and that in a practical point of view, the states of asphyxia and apoplexy are so far different, that in one the loss of blood would be injurious, but in the other highly useful. We believe however that these cases are so far of the same character,

that in both, the arterial circulation is depressed; of course, the phenomena of organic life diminished. The one condition may be regarded as a simple state of asphyxia, the other as asphyxia with venous congestion of the vital viscera; the one requiring simple but appropriate stimulation, the other in addition, evacuation of venous blood, to relieve oppression and facilitate reaction of the heart and arteries.

A. L. H.

XII. *Remarks on the Influence of Mental Cultivation upon Health.* By AMARIAN BRIGHAM. Hartford, 1832. pp. 116, 12mo.

This is a neat duodecimo volume of little more than an hundred pages, into which the sensible author has compressed the substance of much research, and as we think, judicious reflexion. The abundant materials with which he was supplied, might have been readily disposed of to make up a portly volume, and we give him great credit for the manner in which he has condensed his views, so as to enable any one desirous of pursuing inquiries into the subjects treated of, to acquire much information in a little time. The style too deserves notice for its purity and ease. The opinions set forth, though mainly addressed to the parent, tutor, and general reader, are founded upon data immediately connected with the science of medicine, and therefore come within our province.

Our author contends that at this day, and in this country, the intellectual organs have too much imposed upon them, being exercised to such an extent as to materially interfere with the proper development of the physical organization. The too early tasking of infant minds, now so common, he condemns as a most serious evil.

"Much of the thoughtlessness of parents," he observes, "regarding the injury they may do their children by too early cultivating their minds, has arisen from the *mystery* in which the *science of mind* has been involved, and ignorance of the connexion between the mind and body; for we find they are exceedingly anxious and careful about the health of their children in other respects. They know that great caution is necessary as respects their food, lest their delicate digestive organs should be injured by a too exciting and stimulating regimen. A parent would be greatly alarmed if his little child, by continued encouragement and training, had learned to eat as much food as a healthy adult. But such a prodigy of gluttony might undoubtedly be formed. The method to effect it, would be somewhat like that of enabling a child to remember, and reason, and study with the ability and constancy of an adult. Each method is dangerous, but probably the latter is most so, because the brain is a much more delicate organ than the stomach."

Every one must be sensible of the attention and encouragement usually bestowed upon precocious children. But comparatively few are aware of the evils arising from the exertions made in the cultivation of what are regarded prodigies. These interesting subjects are naturally endowed with exquisite sensitiveness of the brain and nervous system; and the pains usually taken to bring them forward, has the effect of increasing or exalting this very dangerous condition. The brain and nervous system acquire from the stimulus of mental exercises, such a preponderance as to interfere with the proper development of the body, and predispose to disease. Our author indeed, instead of regarding mental precocity like most parents do, as a most gratifying indication, goes so far as to consider it a morbid symptom. Convulsions, inflamma-

tions, and dropsy of the brain, rickets, with a variety of nervous ailments, are the affections most incident to this condition of childhood.

"From instances of disease in children which I have witnessed," says the author, "I am forced to believe that the danger is indeed great, and that very often in attempting to call forth and cultivate the intellectual faculties of children before they are five, or six or seven years of age, serious and lasting injury has been done both to the body and mind. The danger arises from parents and teachers forgetting or disregarding this important fact, that, although the mind is immaterial and indestructible, it is yet allied to a material body, upon the healthy state of which it is dependent for vigour and power."

The author insists upon the necessity of conforming to the laws of nature and waiting for the organs to be fairly developed before they are tasked. He beseeches parents to pause before they attempt to make prodigies of their children, and by no means to lament that these do not exhibit uncommonly active powers of mind in early life, or even manifest a deficiency, compared with other children in the knowledge derived from books. It is a great mistake to suppose that children acquire no knowledge while engaged in voluntary play and amusements.

"They thus do acquire knowledge as important as is ever acquired at school, and acquire it with equal rapidity. Many think that the child who has spent the day in constructing his little dam, and his mill, in the brook, or the stream that runs in the gutter; or in rearing his house of clods or of snow, or in making himself a sled or cart, has been but idle, and deserves censure for a waste of time, and a failure to learn any thing. But this is a great error of judgment; for, whilst he has thus followed the dictates of nature, both his mind and body have been active, and thereby improved."

We are sincere believers in the main conclusion to which our author's arguments lead, namely, that the mind may be rendered as decrepid by overtasking at too early an age, as the body. Both should be judiciously exercised, and excessive exertions of the one or the other most carefully avoided. And finally, that the most valuable acquirements of the age of childhood are, a sound body, well developed organs, senses that have all been perfected by exercise, and stamina which will enable him in future life to study, or labour, with energy and without injury. These opinions of our author are supported by the testimonies of some of the most celebrated physicians; as for instance, Tissot, Hufeland, Spurzheim, Sinibaldi, Friedlander, Ratier, Londe, Broussais, Johnson, Jackson, &c. &c.

The next view which our author takes of the influence of mental cultivation and excitement, is in the tendency these have in the production of insanity and nervous affections. He thinks that insanity prevails in this country to a greater extent than in any other, and computes the number of insane persons in the United States at no less than 50,000, or 1 to 262 of the population. He assumes the ascertained number of insane in the state of Connecticut as the basis of his calculation, giving the same proportion to the population of the other states. However correct he may be so far as Connecticut is concerned, we certainly think the amount much too considerable for the rest of the Union. But this conclusion of ours is strongly in support of the author's opinions relative to the influence of great mental cultivation and excitement upon the mind. The state of Connecticut is, we believe, universally acknowledged throughout

the sister states to exhibit the greatest proportion of mental activity. From an accurate detail of the literary resources of the town of Hartford, it appears, that although containing but about seven thousand inhabitants, it is supplied with more means of literary excitement in the various forms of colleges, lyceums, literary clubs, daily and other periodicals, than some of the capitals of European kingdoms, as for example, Naples, Madrid, and Moscow, with their hundreds of thousands of inhabitants.

If it be true that the amount of insane in England has been tripled during the last twenty years, there can be no stronger evidence of the tendency of intellectual excitement in producing insanity. Even with this treble calculation, the number of the insane in England is represented to be but twelve thousand—one-half of whom are idiots. This proportion, though it exceeds that of any other European kingdom, still falls far short of that estimated for this country, in the volume before us.

Notwithstanding the unqualified disapprobation with which our author views all attempts to force literature upon children, he is still a warm advocate for mental cultivation at a proper time of life, believing it so far from prejudicial, to be actually beneficial to health. Nay, by deferring this mental cultivation too long, an evil opposite to that which we have been chiefly considering, may occur. Where the muscles of the body have not been duly exercised, we know that they not only cease to grow, but shrink, and have their power and activity diminished. A similar case happens with the brain, which, if not exercised, diminishes in size, as we see in idiots where it becomes atrophied. When any important organ falls away for want of a proper degree of stimulus, the whole system sympathizes more or less, and thus the health becomes impaired. It must therefore be evident from this view of the subject that a proper degree of intellectual exercise tends to promote sound health. The effect of mental pursuits in advanced life would seem indeed to be the very opposite of what it is in infancy, for as we see that precocious children are very apt to die early, literary men have in all countries been usually long lived.

The author regards dyspepsia as primarily a disease of the brain and nervous system, and as perpetuated by mental excitement. This position is opposed to the pathology of the physiological school, to the doctrines of which he alludes. Which side has the best reasons to sustain it, we shall not now pretend to decide. Both may perhaps be right, for as the operations of the mind influence physical organization, so the conditions of the body or its principal organs may react upon the centre of the intellectual organs. An impression made primarily upon the coats of the intestinal canal may therefore be transmitted to the brain and disturb its healthy actions, or, vice versa, the disturbed actions of the cerebral organ consequent upon mental operations, may be transmitted to the seat of the digestive function which thus becomes impaired in a secondary manner.

We have of course made no attempt to follow our ingenious author through the arguments which he has brought to sustain his positions, but merely adverted to a few of these, referring such of our readers as may feel a more particular interest in the subject to the volume itself. Such a reference, we can assure the reader, will afford him both pleasure and profit; for, although he may not feel disposed to accede to every opinion of our author, he will still

find much sound reason and useful instruction relative to the subject of moral and physical culture. G. E.

XIII. *Tractatus Anatomico-Pathologicus sistens duas Observationes rarissimas de formatione Fibrarum Muscularium in Pericardio atque in Pleura obviarum quem consensu Gratosi Medicorum Heidelbergensium ordinis publico examini submittit* GEORGIUS LEO-WOLF, Dr. Hamburgensis. Accedunt Tabulae Lithotypicae quatuor. 4to. pp. 56. Hiedelbergae et Lipsiae, 1832.

Anatomico-Pathological Observations, consisting of Two extraordinary Cases, in which Muscular Fibres were Developed in the Pericardium and Pleura. By GEORGE LEO-WOLF, M. D. Hamburg.

In the infancy of pathological science, before the laws of the living organism had been so attentively investigated as they have been in modern times, and while various transformations of the different tissues were imperfectly understood, a phraseology was employed which would seem to justify the belief in the accidental development of the muscular tissue in situations in which it does not exist. Thus, in the writings of Bonetus, Morgagni, Lieutaud, and indeed in most of those which treat of this department of the science, we constantly meet with such expressions as *carnification*, *sarcoma*, and various other terms of similar import, which seem to demonstrate a belief of the kind to which we have adverted. The result, however, of subsequent observation and repeated experiments is unfavourable to such a conclusion, and nearly all modern pathologists have concurred in the belief, that no such accidental development of the muscular tissue ever takes place. Some examples have, nevertheless, been reported in support of an opposite opinion, yet these have been of an equivocal character, and by no means adequate to invalidate the prevalent conclusion. Of this kind is the observation of Fleischmann,* who compared the condition denominated sarcoma to muscle, and those of Morgagni† and Dumas,‡ who state that the pleura and pericardium are sometimes converted into a substance resembling muscle. To these we shall add the leading details of the two cases reported by Dr. Leo-Wolf, and examine how far they justify the conclusions which he has deduced from them.

The subject of the first of these observations was a female of tall stature, nervous temperament, and rather spare habit. Her thorax was rather contracted, but her general conformation was good. She died at the age of fifty-six, and what is somewhat remarkable is the fact, that her family seemed to have laboured under a hereditary predisposition to diseases of the vascular system. Her sister died of an enormous *true* aneurism, which occupied nearly the whole extent of the abdominal aorta, an interesting description of which has been given by Professor Nægele,§ and in her father who died of hydrothorax, the aorta, to the extent of several fingers' length, was found converted almost entirely into a complete osseous cylinder.

In early life she had enjoyed uninterrupted health, and after marriage became the mother of one child. About middle life she was affected with frequent attacks of rheumatism and cephalalgia, which, as well as gout, was pe-

* *Leichenöffnungen*, p. 112. 1815.

Recess Periodique, Tome 25, p. 47.

† *De sedibus et Causis Morborum*, Lib. 2. Epist. 32. p. 10.

‡ *Heideberger Klinische Annalen*, 3. Band. 4. Heft.

cular to several members of her family. The origin of her disease was attributed to fright, which proceeded from her cap taking fire while she was reading by the light of a candle. From this time she was affected, for many years, with constant anxiety and frequent palpitation of the heart, unattended with pain, which however were at a subsequent period attended with flushes of heat, succeeded by so much lassitude as frequently to confine her for several hours to the bed. At the age of fifty-five, besides the above symptoms, she complained of slight pains of the left side of the thorax, and a physician who was consulted treated her for hydrops pericardii. All her symptoms continued to increase. The palpitations became more frequent; the respiration was more difficult; the extremities were cold, and her mind, which during health had been remarkable for hilarity, became irascible, sad, and dejected, and she was constantly harassed by the fear that she was labouring under the same disease that had affected her parents. An oedematous condition of the upper and lower extremities finally manifested itself, together with sympathetic pains of the same parts, and the difficulty of breathing became more considerable, and was accompanied with all the symptoms of hydrothorax. This state of affairs continued until her death.

On examination of her body, a considerable quantity of water was found in the chest, but the abdomen presented nothing remarkable.

The heart, surrounded by its pericardium, presenting an extraordinary condition presently to be noticed, while contained within that membrane, seemed to exhibit its usual volume, but when removed from its covering, the auricles and ventricles were apparently diminished in size. The external surface of the pericardium exhibited numerous small, elongated masses, of an adipose substance, of a yellowish colour, and so delicate in their structure as to be easily broken up with the finger, which at some points, and especially upon the posterior face of the organ, were united by the intermedium of delicate cellular tissue, which, where the mass was largest, assumed a more thick and compact arrangement, and adhered intimately with the pericardium. The left portion of the fibrous tunic of that membrane adhered closely, near the apex of the heart, to the left costal portion of the diaphragm; but that membrane when carefully separated from the serous tunic, seemed to be unaltered in its structure. But the latter was opaque, and much thicker and more compact than usual. That portion of the serous membrane which invests the surface of the heart was neither thickened or altered in its texture. It adhered throughout its whole extent to the surface of the ventricles, which was covered with masses of adipose substance. The surface of the membrane was covered with numerous shreds and lamina of an adventitious character, which were situated between it and the heart, and which could be easily removed with a scalpel. When these were removed, the muscular fibres of the organ were exposed. The free surface of the serous membrane was covered by a thick layer of a muscular character, which, together with the adventitious laminae of coagulable lymph, imparted to the pericardium its apparent and thickened and condensed character. This mass was of a distinct fibrous character, and the fleshy fibres of which it was composed were seen interlacing with each other. These fibres at first sight seemed to belong to the proper muscular substance of the heart, and were so situated, that they appeared to be placed immediately beneath the se-

serous lining of the pericardium, with which they were intimately connected. When, however, they were attentively examined, and traced out in the course of their distribution, this was found not to be the case. Those fibres which were situated upon the anterior face of the heart, and upon the outer surface of the pulmonary artery, on a level with the point at which the serous membrane of the pericardium becomes reflected upon the organ, where they were slender, were seen to unite with other fibres equally slender upon the middle of the base of the heart, where the aorta ascends from the left ventricle, between the pulmonary artery and the vena cava, and being thus rendered stouter, they twined, in an oblique direction, upon the surface of the right auricle, and the superior vena cava, where it communicates with that cavity. Other fibres, descending in an oblique direction from the left to the right side of the heart, covered the surface of the right ventricle, were reflected backwards upon the margin of the organ, and upon the apex of the ventricle were so disposed as to form a kind of vortex, the fibres of which running backwards and upwards, continued with others which descended upon the posterior face of the left ventricle, and which were reflected forwards to meet them. These fibres were much more closely united with each other upon the apex of the ventricles, than at any other point, and were disposed there in the same spiral order as the proper fibres of the heart, merely differing from them in their direction.

It will thus be seen that the whole surface of the heart was covered with a stratum of adventitious fibres, which was situated exterior to the serous covering of the organ. These fibres were, however, exceedingly complicated in their distribution, some of them being disposed in parallel series, while others interlaced with each other like the filaments which enter into the formation of a nerve. In some situations they were feeble and indistinct, but at others were strong, and exhibited a distinct, fasciculated arrangement.

The following is the chemical analysis of this adventitious substance, which was made under the direction of Professor Leopold Gmelin, who is well known for his high attainments in this department of science.

Several pieces of the substance were boiled in water until the filtered fluid ceased to become turbid on the addition of the tincture of galls. A part of the residue afforded by this process was then digested in concentrated acetic acid, which, after standing some time, became converted into a soft, gelatinous mass. A portion of this was digested in warm water until it was dissolved, when, on adding the tincture of galls and ferrocyanate of potassa, a precipitate of fibrine was deposited. A second portion of the same gelatinous mass, which had been digested in dilute muriatic acid, was first immersed in cold, and afterwards in warm water, and the fluid which was thus obtained, being treated with tincture of galls, ferrocyanate of potassa, and alkalies, threw down a precipitate of fibrine. These experiments, especially the first, is considered by the author as conclusive in favour of the presence of fibrine in the adventitious substance which was submitted to examination.

The second case detailed by Dr. Leo-Wolf is so similar in its essential details to that which has been described, that we do not deem it necessary to enter into any exposition of the circumstances which it presented. It will be sufficient to observe, that in this case, the adventitious fibres were developed upon the surface of the pleura costalis and diaphragm.

Dr. Leo-Wolf has appended some very ingenious physiological and pathological reflexions; and has discussed, at some length, the subject of the development of pseudo-membranes, and the several metamorphosis through which they pass in proportion as their organization becomes more perfect, and the ultimate forms and conditions which they assume under different circumstances. But with regard to the muscular character of the adventitious development which was observed in the two cases under consideration, while we admit that they are highly interesting in a pathological point of view, and that they furnish strong evidence in favour of the supposition of the accidental development of the muscular tissue, we are constrained to confess, that we do not consider the evidence as entirely conclusive. Fibrine constitutes, as is well known, the predominant element of the muscular fibre; yet it also exists in other organic productions which do not possess any of the properties of muscle. Its presence therefore in the substance under consideration cannot be received as conclusive in favour of the opinions of the author. We will merely observe, in conclusion, that while Dr. Leo-Wolf deserves much credit for the importance of the facts which he has brought forward, and the ability with which he has descanted upon them, that we still consider the long-mooted question of the accidental development of the muscular tissue as undecided. E. G.

XIV. *De Morbo qui Laesiones in Cadaveribus Dissecandis haud raro sequi solet—*

Dissertatio inauguralis medica quam consensu atque auctoritate gratiosi medicorum ordinis in Universitate Literaria Ruperto-Carola cruditorum examini submittit auctor MAURITIUS LEO-WOLF, Hamburgensis Medicinæ, Chirurgiæ, atque artis Obstetriciæ Doctor. Heidelbergæ, 1832. 8vo. pp. 90.

An Inaugural Dissertation on the Disease occasioned by Wounds received in the Dissection of Dead Bodies. By MAURICE LEO-WOLF, of Hamburg, &c. &c.

The formidable affection which is the subject of this dissertation, has, within a few years, attracted a considerable share of attention; yet notwithstanding the zeal and assiduity with which it has been investigated, its pathology still remains obscure, and its treatment unsettled. It presents itself under various degrees of intensity, and where it assumes a mild character, very frequently yields to appropriate remedies. It nevertheless often assumes such a degree of malignity as to rebel against the best directed treatment, and march onward with frightful rapidity to a fatal termination. A long list of highly distinguished members of the profession have fallen victims to its ravages amidst the most appalling sufferings, and those who have been affected and have been so fortunate as to recover, have generally languished out weeks and months under insufferable torments, and have had their constitutions so enfeebled and broken down as to be a long time in regaining their health. Dr. Maurice Leo-Wolf was himself a sufferer under the disease which he has selected as the subject of his dissertation, and was doubtless induced, by that circumstance, to bestow upon its investigation the industrious research which his essay manifests. He has attentively examined nearly every thing that has been published on the subject, and has thus been enabled to collect together a considerable mass of interesting facts. He has drawn up a very good description of the disease, and has noticed all the leading opinions relative to its pathology and treatment, but

we regret to find that he has not been able to advance any thing new upon either of these points. He nevertheless deserves our commendation for the zeal and industry with which he has investigated the subject, and for the large mass of information which he has collected, from such a diversity of sources, and condensed into a small compass.

E. G.

XV. *Aus der Erfahrung geschöpfte Andeutungen zur Erkenntniss und Behandlung der Epidemischen Cholera.* Von Dr. A. L. KOSTLER, k. k. Polizey-Bezirksarzt in Wien. 12mo. pp. 32. Wien, 1831.

Praktische Erfahrungen über die Natur der Cholera in Lemberg und Behandlungsart derselben. Von JOSEPH BERRIS, ordentl. öffentl. Proff. der anthropotomie und ausord. der Pathologischen anatomie der Universität in Lemberg. 8vo. pp. 16. Lemberg, 1831.

Notices of the nature and treatment of Cholera, drawn from experience. By Dr. KOSTLER, of Vienna.

Practical Observations on the nature of the Cholera as it appeared at Lemberg, and on its treatment. By Professor BERRIS, of Lemberg.

Were our acquaintance with any given subject in medical science to be judged of by the number of publications which have appeared in relation to it, then would there be no one upon which our knowledge should be more complete than that of cholera. We have laying before us a list of the different works and treatises which have been published on the nature, causes, and treatment of cholera, upon the continent of Europe, occupying upwards of twenty-five duodecimo pages; add to these the publications on the same subject which have issued from the English and American presses, and we shall have of such works alone a sufficient number to fill the shelves of a very respectable sized library. After all, however, upon the pathology of cholera we are still we think greatly in the dark. The closest and most attentive examination of the phenomena by which the disease is accompanied—the immense number of autopsical examinations that have been made of the bodies of those who have died of it—and all the inferences we have been enabled to draw from the effects produced by the remedies that have been administered for its cure—all these leave still the proposition true—we have no certain knowledge of the pathological condition of the tissues by which the symptoms of cholera are produced. So far as regards the predisposing and some of the exciting causes of the disease, and its phenomena, we undoubtedly possess very exact information; and concerning, also, the most effectual means for its treatment, we are as well acquainted perhaps as in regard to any other disease. A knowledge of these points, however, we may remark, is of the very first importance.

The two short pamphlets, the titles of which are placed at the head of this article, the one published in Vienna and the other at Lemberg, would scarcely of themselves demand a notice; but being sent to us by an esteemed correspondent abroad, we could not, out of respect to him, pass them over in complete silence.

The first, which upon the whole deserves a good deal of praise, presenting a very correct sketch of the symptoms of cholera, and some very excellent remarks upon the treatment of the disease, was evidently published for the infor-

mation of the physicians of Germany, previously to the epidemic having made its appearance in that country. It of course has much less interest than those accounts of the disease that have been drawn up from actual observation. Such a one the second of these works purports to be. Professor Berres states, that what he has advanced in relation to the symptoms, pathology, and treatment of cholera, is the result of observations made upon between twelve and thirteen hundred patients. The nature of the pathology advanced by this gentleman will be understood by the following extract:—

“By the action upon the human system, of the poison producing cholera, the vital power of the ganglionic nervous system, particularly that of the abdominal viscera, is more or less impaired, even sometimes completely destroyed; while, most commonly at the same time, the oxygen in the blood is absorbed. Hence cholera consists in a decreased activity of the ganglionic nervous system, and a defective arterialization, (super-venosity,) of the blood.”

Both the writers before us, agree as to the propriety and efficacy of bleeding, both general and topical, practised at the first onset of an attack of the disease. There are indeed few points connected with the treatment of any malignant disease, upon which there is so general a concurrence of opinion as we find to exist upon the necessity of blood-letting in cholera. The great majority of the publications in relation to the disease which have fallen into our hands, and they are sufficiently numerous, however opposite the views advanced in them on other points connected with the epidemic, all agree as to the importance of the lancet in the first period of the attack; and more especially is this the case among such of the writers as have had the most ample opportunities for studying the disease. Our own experience, also, confirms the importance of the remedy. We might venture even to assert that few cases of cholera would prove fatal were venesection boldly resorted to soon after an attack.

D. F. C.

XVI. *De Angina Membranacea. Dissertatio Inauguralis Medica quam consensu et auctoritate gratiosi medicorum ordinis in Universitate Literaria Berolinensi ut Summi in Medicina et Chirurgia honores rite sibi concedantur, etc. publice defendit auctor GODOFREDUS ZICHNER, Salza-Parthenopolitanus.* 8vo. pp. 27. Berolini, MDCCCXXV.

Disputatio Medica Inauguralis de Cynanche Tracheali; etc. pro gradu doctoris Summisque in Medicina honoribus ac privilegiis, rite et legitime consequendis; Eruditorum examini subjicit SAMUEL MALINS, Anglus, etc. etc. 8vo. pp. 44. Edinburgi, MDCCCXXX.

On Angina Membranacea, an Inaugural dissertation for the degree of Doctor in Medicine. By GODOFREY ZICHNER, Defended before the Medical Faculty of the University of Berlin.

On Cynanche Trachealis, an Inaugural dissertation for the degree of Doctor in Medicine. By SAMUEL MALINS, Defended before the Medical Faculty of the University of Edinburgh.

We regret that the regulation of our University, which in former years required the graduates in medicine to publish their inaugural dissertations, has been dispensed with. The regulation we are well convinced was a good one. That commendable ambition which every young physician ought to feel to be

enabled to exhibit to the world a favourable specimen of the talents and acquirements which have gained for him admission into a highly respectable and important profession, and upon which he grounds his claims to public confidence and support, is best promoted by causing him to commit to the press the first fruits of his professional studies. Comparing the printed dissertations of the graduates of our own University with the great majority of those which are now accepted as theses, the very striking inferiority of the latter will be acknowledged by every unprejudiced person. The powerful incentive to produce a valuable essay is removed—and all the candidate cares for, is to make his thesis sufficiently correct to insure its acceptance by his examiners; beyond this, all labour bestowed upon it, he considers as useless. The only objections of any weight that we have heard advanced in favour of the present regulation, are, first, that the dissertation presented for a degree, being the production of a student without experience or any opportunity for collecting facts, can be viewed only as a compilation, or at best as mere transcript of the opinions advanced by his preceptor; secondly, that it is augmenting unnecessarily the expense and difficulty of graduation to oblige the student to print his thesis; and thirdly, that the individual possessed of the least talents, would be found often to publish the best dissertation, from the ease with which the assistance of others fully competent to the task, can be obtained for a sufficient compensation. To these objections we reply, that the whole system of medical instruction adopted in this country is manifestly imperfect. Too short a period is spent by students in the acquisition of medical knowledge previous to graduation. The physician is, in most cases, permitted to assume the active and responsible duties of his profession with too little experience—too small a stock of sound practical knowledge. Hence it is, that we cannot expect from medical students, at the period of their graduation, in the majority of cases, a dissertation fit for publication. Were they content, however, to pass a few years longer, than what is now required, in some one of our public hospitals or infirmaries, there are many points in physiology, pathology and therapeutics, upon which they might collect important facts to constitute the subject of their inaugural theses. The first objection noticed above, holds good, therefore, not against the publication of the thesis, but against the present inadequate system of medical instruction in this country. The second objection will apply only to indolent students, and such as are destitute of the requisite perseverance. To the industrious the preparation and publication of a useful dissertation will present but a trifling obstacle to his admission to the doctorate; while the application demanded in its preparation cannot fail to influence beneficially his future standing and usefulness in the profession. The third objection can be readily obviated by requiring ample evidence of authorship. These reflexions, which may perhaps be considered somewhat out of place, were suggested from our having recently examined a large number of the inaugural dissertations published by the medical graduates of the different Universities of Europe; many of which confer a very great deal of credit upon the authors, and no inconsiderable degree of honour upon the schools at which these were educated. We disapprove, however, of the practice pursued in all foreign Universities, with the exception of those of France, of requiring the dissertations to be written in Latin. Advocates, as we are, for classical education in physicians, we nevertheless conceive that the time which is spent in attempting to write correctly

the Latin language, would be more profitably occupied were it devoted to the study of our native tongue.

We have presented at the commencement of this article the titles of two inaugural dissertations on the subject of croup. The first by a graduate of the University of Berlin; the second by a graduate of the Medical School at Edinburgh. Neither of them can lay much claim to elegance of style or pure Latinity. Both, however, present very excellent and correct histories of the disease of which they treat, and rational views of its pathology and treatment. The dissertation of Dr. Malins, in which every point connected with the disease is more minutely considered than in that of Dr. Zichner, deserves, also, the preference, in consequence of the clearness of the author's pathological views, and the bold and judicious treatment he lays down. Both authors insist upon the importance of bleeding and cathartics in the first stage of the disease; but only Dr. Malins adduces the evidence in favour of large doses of calomel in its treatment. Dr. Zichner merely remarks of calomel as follows:—

“After bleeding, this remedy is the one best adapted to remove the remaining inflammatory irritation, and to prevent the exudation of coagulable lymph in the trachea.”

Dr. Malins very properly considers all attempts to remove the false membrane formed within the trachea in cases of croup, by an operation, to be utterly fruitless, and for the following reasons:—

“1st. The false membrane formed within the trachea is not always in one piece, but is dispersed over the mucous membrane in distinct patches, which it is impossible to remove, unless numerous openings into the tube be made, or its whole cavity be laid open.

“2d. The false membrane very often extends into the ramifications of the bronchiæ, which are filled with a viscid fluid very similar to pus.

“3d. Post mortem examinations prove that the false membrane very rarely closes completely the tube; hence death does not take place merely from the mechanical impediment which this membrane offers to respiration.

“4th. Even were we able to lay open the trachea and remove the false membrane, recovery is not certainly to be expected in consequence; since in some patients the whole of the membrane is rejected by the efforts of nature, and death nevertheless takes place.”

D. F. C.

XVII. *Aliénation Mentale.—Des Illusions chez les Aliénés.—Question Médico-Légale sur l'Isolément des Aliénés.* Par M. ESQUIROL. Paris, 1832. pp. 83. 8vo.
Mental Alienation.—On the Illusions of the Insane.—Medico-legal Inquiry on the Solitary Confinement of the Insane, &c.

These two memoirs of M. Esquirol were read before the Institute of France in October of last year, and were afterwards presented to the world in a pamphlet form. Although interesting, they do not contain any thing that will add to the fame their author has already attained. As, however, every thing that emanates from M. Esquirol on the subject of insanity bears the stamp of actual observation, we shall give the conclusions he has arrived at on these points. He thinks that it may be assumed as certain—

1st. That illusions are produced both by external and internal sensations.

2d. That they are the result of the action of the sentient extremities of the nerves, and of the reaction of the nervous centre.

3d. That illusions are also as often induced by an excitement of the internal senses, as by those of the external senses.

* 4th. That illusions cannot be confounded with hallucinations, (visions,) as in the latter the brain alone is excited.

5th. That illusions mislead the judgment as regards the nature and cause of impressions actually received, and impel the insane to the commission of acts dangerous to themselves or to others.

6th. That sex, education, profession and habits of life, by modifying the cerebral reaction, also modify the character of the illusions.

7th. That illusions assume the character of the predominant passions and habitual thoughts of the insane.

8th. That reason dissipates illusions in those of sound mind, but cannot exercise this power in the insane.

With regard to the second memoir, it discusses points of law, which are considered in all civilized countries as settled by common consent. For though the laws state that lunatics shall only be confined in cases where it can be proved that it is necessary to prevent some immediate injury from being done by the individual, either to himself or others, yet by tacit consent it has been allowed to confine an insane person either in his own house, or elsewhere on other grounds, for instance, to subject him to a course of treatment, &c. to which he would not submit without coercion.

We have translated the word *isolement*, solitary confinement, but M. Esquirol gives it a wider signification; he defines it to be a withdrawal of the individual from all his accustomed habits, from his place of residence, and a separation from his family and friends; in fact, changing his whole mode of life.

In almost every country of Europe, it is merely sufficient for the friends of an insane person to make the necessary arrangements with the managers or directors of a hospital or private establishment to ensure his admission. This also is the case in the United States. In many of the towns of Germany however, a certificate of a medical man appointed for that purpose by the corporation is required. In England, the law requires the certificate of two medical men, attesting the insanity of an individual before he is allowed to be confined. The Lord Chancellor, who is *ex officio* guardian of the insane, can also order their confinement. In Paris, the regulations as respects the admission of patients to the different lunatic asylums, are very various.

M. Esquirol is of opinion, that the insane should be subjected to solitary confinement.

1st. For their own safety and that of their families and the public.

2d. To withdraw them from the action of the external causes that have produced the aberration of mind, and which may keep it off.

3d. To overcome their resistance to curative means.

4th. To subject them to an appropriate regimen.

5th. To enable them to recover their intellectual and moral faculties.

From these conclusions no one can dissent, but on the other hand, have we a right to confine a lunatic who enjoys his reason perfectly except on a particular subject, and who preserves all his moral sensibility? The only answer that can be made, is, that experience has demonstrated, that the insane are rarely cured when surrounded by their family and friends, and subject to a multitude of external impressions, whilst their restoration may be prompt and certain if these sources of excitement are withdrawn.

R. E. G.

XVIII. *Physiologie Médicale et Philosophique.* Par ALM. LEPELLETIER DE LA SARTHE. 4 vols. 8vo. avec et planches and des tables synoptiques. Tome I. Paris. Au Mans. 1831.

In presenting a new systematic work on a science much studied and progressively improved, three recommendations may be contemplated by the author as entitling it to popular attention. These are, the value of the compiled materials, important original researches, or, in fine, the agreeable style and the clearness with which the information is conveyed. Of each of these merits we have very successful examples in the department of knowledge which it is the object of M. Lepelletier's work to teach. Thus, the amount and value of collected materials are remarkable and honourable in the work of Dr. Bostock; that of Magendie is conspicuous for its originality and novelty; while the graces of diction and a clearness of expression and arrangement invaluable to the student form the most attractive charm in the already old but beautiful work of Richerand.

Which of these three species of merit to ascribe to the work before us, there is some difficulty in determining. In amount of detail and extent of research, it does not appear to us to excel the production of Bostock, or in its own language, that of the elaborate Adelon. The originality in observing, although a claim to this is set forth in the introduction, (p. 9,) has not appeared to us at all conspicuous; and certainly will not place the author in a situation likely to rival some of the shining lights of physiology now existing both in France and other European countries. To the third quality, that of a lively and piquant style, we must concede the author some claims. He writes with an enthusiasm, a sprightliness and an air of philosophical conception that certainly possess considerable attraction. Yet even here the work is liable to the accusation of an appearance of haste, scarcely to be justified in a task of so elaborate and imposing a character as a treatise on physiology. This fault extends to occasional errors in style, but more frequently to a looseness in correcting the press; much greater than we are accustomed to witness in publications received from Paris. This perhaps is more fairly chargeable upon the provincial printing office from which the work emanates than upon the author. It is sufficient, however, to create occasional embarrassment in an unpractised reader of the French language.

More importance attaches to these matters of literary and mechanical execution from the convenient size and neat conception of the work; qualities which are otherwise well adapted to make it a popular manual. In four small French volumes, it would probably, when complete, be rather smaller than the treatise of Richerand; and if executed in the compendious manner of which the present volume gives reasonable hopes, would furnish a very suitable and useful production for this object. Still, however, balancing all its qualities, favourable and otherwise, we are not of opinion that it ought to supersede either the work of Bostock, or the very elaborate and copious one of professor Dunghison.

B. H. C.

XIX. *Observations on the Chlorides and Chlorine as "Disinfecting Agents," and as Preventives of Cholera.* By HENRY BRONSON, M. D. Boston, 1832. pp. 12. 8vo.

Chlorine and its compounds have been generally employed in this country as preservatives against cholera, and such implicit faith appears to be reposed in their powers that it may seem a heresy to doubt their efficacy, and yet we cannot but participate in Dr. Bronson's doubts of their utility and even safety, and conceive that he has done well in endeavouring to shake the confidence of the public in these preparations as substitutes for real cleanliness.

Chlorine has been employed with two distinct views; 1st, as a means of purification or cleanliness, and 2dly, with a view to destroy or decompose a supposed specific miasm productive of cholera.

The powers of chlorine in destroying offensive odours, and the means by which it accomplishes this, viz. by its powerful affinity of hydrogen, one of the elements of these gases, is well known. It appears to us equally well established, that filth or fetid gases are favourable to the production of disease, and cholera affords no exception to this rule. As a means of purification, chlorine may then no doubt be often resorted to with advantage. But there is a great difference between destroying odours by forcing their elements to enter into new and inoffensive combinations and merely *disguising* such odours by diffusing in the air other more pungent vapours, and this fact appears not to have been sufficiently adverted to; and implicit faith being reposed in the disinfectants other means of cleanliness have been neglected.

"Filth," says Dr. Bronson, "instead of being removed, has been too often merely sprinkled or mixed with the chlorides. This has not only been done *about* dwellings, but *within* them. I have seen the floors, furniture, &c. literally *plastered* with a mixture of filth and the 'preventives.' Removal has too frequently been neglected, even when practicable, in consequence of its being thought unnecessary. It is laborious and expensive, and was so considered. Besides, it is an *antiquated* mode of making clean, and, moreover, is highly *unscientific*. The new and improved plan was enthusiastically adopted. Matters were conducted on *chemical principles*. Common sense was scouted, and her place occupied by a nobler genius—the genius of philosophy. The old and vulgar means of purifying, such as washing, and scouring with soap and water, ventilation, sweeping, scraping and removing, &c. were frequently abandoned, not only as costly, but *as behind the improvements of the age*."

But whatever may be the utility of chlorine as a means of purification, it certainly possesses no powers as a preventive of cholera, except as promoting the former object. The very *existence* of any specific miasm productive of cholera remains to be proved, and whatever the cause of this pestilence may be, all the facts are against chlorine possessing any controul over it. The medical commission sent by the French government to Russia, in their report, most positively assert "that there does not exist between chlorine and the cause productive of cholera, any combination capable of neutralizing the influence of this deleterious agent." "This formal declaration," they add, "is not only the result of six months experience; it is also the avowed opinion of the most distinguished physicians of Russia, of Prussia, and of Austria." "Considered as a preservative means," they further observe, "the preparations of chlorine have

constantly proved useless. We do not know a single fact favourable to their use; and a host of observations on the contrary prove, that the security which they may inspire has always been deceptive.*

The following letter from Dr. Parsons of Providence, quoted by Dr. Bronson, appears conclusive on this point:—

"The sloop Hero sailed from New York on the 17th of July, 1832, with thirty passengers on board, and was quarantined at Newport eight days from her time of leaving that city. On the day of landing the passengers, four of them were immediately attacked with Asiatic cholera, and died in a few hours. *This vessel had five tons of best Scotch chloride of lime on board, shipped on the 14th of said month; any one cask of which, the owner informs me, would give out through the staves sufficient gas to saturate the atmosphere of the vessel as effectually as would be done if the floors and decks were sprinkled with the powder. Yet with thirty such casks between her decks, this happens to be the only vessel out of the great number arriving with passengers from New York, that has brought any person infected with the disease!*"†

As destructive of the cause of cholera, the chlorine has not only proved ineffectual, but when injudiciously used, it has actually been productive of mischief. MM. Guymard and Girardin state that the disengagement of chlorine in the wards containing cholera patients hastens the death of the sick. MM. Itard and Marc state that they also have observed pernicious effects from the employment of chlorine as a preservative of cholera.‡

The Central Board of Health of Great Britain, advise the use of the chloride of lime to correct offensive smells, but recommend great caution in the use of the material; "its fumes," they remark, "continued for any length of time, having been found highly prejudicial to health—more particularly in delicate persons.

"Enough (facts) have occurred in this city," (Albany,) says Dr. Bronson, "to satisfy any candid mind that the gas exhaled from the chlorides is *not innocuous*—that it cannot be respired with impunity where epidemic cholera is prevailing—that its tendency is to augment and not to diminish the number of the sick. It has taken rank here among the numerous exciting causes of disease, and has not been least in importance. I have experienced inconvenience from it myself, in common with many others. The effects on susceptible persons have often been powerful. On such, a state approaching *asphyxia* has sometimes been produced while walking the streets. An attack of the epidemic has in more than one instance been satisfactorily traced to the free respiration of chlorine. One physician has mentioned to me a remarkable instance. All the members of a large and respectable family were seized with the symptoms of the malady within eighteen hours after a liberal use of the 'preventive' in all parts of their dwelling. Their physician not unreasonably attributed their sickness to the said 'preventive.' I could mention other instances hardly less melancholy."

From all that we have seen and read upon this subject it appears to us clearly established, 1st, that chlorine possesses no power over the unknown cause of cholera; 2d, that its use in the wards of the sick is injurious; 3d, that as a *substitute* for other means of purification it is ineffectual; and lastly, that it is useful only as decomposing offensive effluvia arising from certain situations which do not admit of perfect cleansing, as privies, common sewers, dissecting rooms, barn yards, &c.; and the effluvia from which producing nausea and vomiting, seems to favour the production of cholera.

* Gazette Medicale de Paris, Tom. III. p. 99.

† Ibid, Tom. III. p. 173.

XX. *Two Lectures on the Primary and Secondary Treatment of Burns.* By HENRY EARLE, F. R. S. Surgeon Extraordinary to the King; Surgeon to St. Bartholomew's Hospital, &c. &c. London, 1832. 8vo. p. 59.

The subject of burns is one meriting especial attention, as well from the frequency of their occurrence as from the calamitous deformities and even fatal consequences which often ensue. The plans of treatment which have been advocated at different times for the cure of these injuries, are so numerous and opposite in their character, and the opinions of medical men, even at the present day, so much at variance, as to make it most desirable that some rules should be determined for the regulation of the treatment of these cases, founded upon rational principles. The object of Mr. Earle is to accomplish this. In his first lecture he endeavours to fix the principles upon which the primary treatment of burns should be conducted; in his second lecture he offers directions for the subsequent treatment of these cases, and points out the best means of obviating those unseemly deformities, contractions and lamenesses, which so frequently ensue in these cases when the counteracting influence of art is not skilfully interposed.

It is almost unnecessary to remark, that—

“By burns or scalds are understood those inflammations, with their usual consequences, which are produced by the action of high degrees of heat applied to the different textures of the body. In severe burns the vitality of the skin and flesh is often completely destroyed by the action of the fire, which actually decomposes it, and renders it a *caput mortuum*, without the intervention of any previous inflammatory process.

“In the first or mildest form of scald or burn,” says Mr. E. “a degree only of inflammation is produced, which, by proper treatment, speedily terminates by resolution, without exciting any constitutional or symptomatic fever. Even when unassisted by art, many of these cases terminate spontaneously by resolution; occasionally, in irritable habits, such injuries will excite more febrile action and continued sharp pain, attended with redness and swelling. In such cases vesication may follow after some interval, as a consequence of the inflammation. Under these circumstances, although the degree of injury inflicted may be moderate, the case may be of importance from the extent of surface which may have been involved, and which may render it of far greater moment, than when a much greater degree of heat has been applied to a more limited surface.

“From the second form or degree of injury arising from the application of heat, whether dry or moist, vesications speedily follow, which increase in volume and number according to the nature of the substance which has conveyed the heat, and the extent to which it has been applied. You well know that different substances have different degrees of capacity for caloric; that some part with it more rapidly than others. These circumstances must be borne in mind in estimating the probable extent of injury. Thus, boiling oil will inflict a severer burn than boiling water, and boiling metal a still more severe one. In this second degree of injury from the application of heat, it commonly happens that some part of the surface is denuded of its cuticular covering, leaving a highly inflamed surface in a state of the greatest excitement, exposed to the action of the air and other stimulants. The inflammation which is excited, will also terminate in more extensive vesication than what resulted from the immediate application of the heat. The constitutional disturbance consequent upon such an injury is sometimes very considerable: severe rigor, followed by fever, and much nervous excitement, commonly ensue; and if the surface injured be con-

siderable, serious disturbance of the serous and mucous membranes not unfrequently arises from the functions of so important an organ as the skin being more or less impaired or destroyed.

"The third and most important kind of burn is that in which more or less of the integument and the more deeply-seated parts are deprived of their vitality, either by the immediate violence and intensity of the heat applied, and the duration of such application, or in consequence of the high degree of inflammation which has been excited, and the peculiar temperament of the individual. Such cases are almost always combined with the two former degrees, as it very rarely happens that the whole force of the fire is expended on any given spot. One part suffers more severely, and may lose its vitality, whilst those in its neighbourhood may be vesicated and denuded, or only inflamed. Nothing can be more varied than the aspect presented by severe burns: at one part there may be an appearance of deep red, whilst others are vesicated, and a third may present the appearance of an eschar. The parts which are entirely deprived of vitality usually are of a dirty white colour, and the cuticle peels off without rising; at times they have a semitransparent appearance; and the course of the superficial veins, filled with dry, coagulated blood, may be seen crossing in different directions; around these dead portions the integuments have the deepest red, approaching to gangrene, which is gradually lost as you approach the more healthy skin: at other times, when the parts are very deeply destroyed, the eschar has a black appearance, nearly similar to the dry gangrene of the feet of old people.

"It is often very difficult at first sight to form any correct opinion of the extent and depth to which this destructive process may have gone; as burns are produced by such various substances, differing in their sensible temperature, it follows that very different results will ensue from their application, from the duration of their application, and, as I have before stated, the peculiar temperament of the individual: hence, it is always prudent to be guarded in your prognosis when any of the appearances above enumerated are observable. Whatever may have been the exciting cause, all burns of this description must be regarded as most serious injuries, and as claiming your especial attention. The constitutional symptoms which accompany them are always severe. The extremities are generally cold, and the patient experiences rigors, which recur at irregular intervals, and are in general in proportion to the extent, and depth, and importance of the part burnt. Exposure of the surface of the body greatly increases these rigors; so that you generally have an opportunity of witnessing this phenomenon when a patient is first admitted to the hospital. The pulse is frequent and very small. The respiration is often laborious. The stomach is irritable, and rejects its contents. Hiccough ensues, and the patient often sinks into a state of coma, in which he expires in a few hours, or after an interval of from one to two days. If the patient survive this first stage, he may fall a victim to the symptomatic fever which ensues at any period during the first fortnight. It not unfrequently happens that active inflammation of some of the serous or mucous membranes arise, which may claim all your attention, and require a plan of treatment very opposite to that which the local injury would appear to indicate. These febrile symptoms generally abate after the first fortnight; and if the case terminates unfavourably after this period, the patient sinks, from his vital powers being worn out by copious discharge and continual suffering, and he dies completely hectic. It has often occurred to me, that certain days might be considered critical, from the frequency of a fatal termination on those days, particularly the third and tenth days."

Two modes of treatment diametrically opposed to one another, appear to have been employed in all ages. The one has for its object to diminish the inflammatory symptoms by the application of cold; the other to effect a cure by stimulating applications. The employment of cold in the treatment of scalds

and burns has the boast of antiquity in its favour, as we find it advocated by Rhazes and Avicenna; and further, it appears, *prima facie*, consistent with common observation and common sense, namely, to combat an injury inflicted by the application of too high a temperature, by such means as are calculated to diminish the temperature.

"When the hot fluid," observes Mr. E. "has been directly applied to any exposed surface, as the hands, the speedy employment of the antidote, cold, will often prevent vesication, and the case will terminate by resolution. It more commonly, however, happens, that the part affected is at the time enveloped in some article of clothing, as the legs and feet with stockings; in which case more or less vesication is likely to occur, from the clothes retaining the hot liquid in contact with the skin. It unfortunately happens too frequently under these circumstances, that the first thing that is done is to remove the stocking or clothes, which never fails to bring away with it large portions of the cuticle, leaving the highly inflamed cutis quite denuded. If, instead of this forcible removal of the clothes, such limbs were to be immediately immersed in the coldest water, this most serious result would generally be prevented. The same clothes which were the medium for conveying and retaining the heat, may be made the readiest means of abstracting it, and diminishing the inflammation; and should it become necessary, in consequence of the formation of large vesicles, to remove them, they should be carefully cut away, and the vesicles preserved unbroken; by which the serious consequences which always follow the exposure of the highly inflamed cutis will be prevented."

The application of cold Mr. Earle thinks may be most advantageously employed in many cases of scalds and slighter burns, especially of the extremities, and when the skin is not broken; but when the injury is extensive, and occurs in any part of the chest or trunk, or in a delicate constitution, it cannot be employed without incurring the risk of inducing inflammation of the pleura or peritoneum.

"The advantages which this plan holds out are," he observes, "that it may often be resorted to without delay, and it has the effect of affording immediate relief: the disadvantages attending it are, that it is necessary to continue and renew the application of cold for a considerable length of time, as the heat and pain will return, unless the diminished temperature be steadily maintained. There are many different modes in which cold may be employed; ice pounded and put in a bladder, or snow, or very cold water, or Goulard's lotion, with scraped potatoes, are commonly employed; whatever plan be pursued, it is desirable that the burnt part should never be exposed to the atmosphere until the inflammation be subdued, as reaction is certain to follow every such exposure. One of the most simple and efficacious plans is, to envelope the part with rags, and to keep them constantly wetted with water, in which ice is placed from time to time; *care being taken never to remove the rags from the burnt surface*; whenever the vital powers are depressed, and rigors supervene, the employment of cold is prohibited, a circumstance which will occasionally happen, after even inconsiderable burns, in irritable constitutions."

The stimulating plan of treatment is also of great antiquity. Aristotle recommended that the burnt or scalded part should be exposed to the heat of the fire to draw out the fire. With the same intentions a host of stimulating applications have had their advocates in different ages, and many cases it must be admitted have been successfully treated by all these remedies. Mr. Earle believes, with much reason, that many of these cases are rather owing to the efforts of nature, which will, in many cases, be crowned with success under all circum-

stances, rather than to the specific agency of these remedies. Different oils and various unctuous substances have been highly extolled; the benefit derived from them in Mr. Earle's opinion, may be referred to one common principle, which he thinks should be steadily kept in view, whatever may be the application employed; namely, "*as speedily as possible to exclude the air from the inflamed surface, which never fails to stimulate, and to excite an injurious degree of reaction.*" To this same principle of excluding the air, Mr. E. refers all the good which accrues from the application of flour or fullers' earth and carded cotton.

"If then," he remarks, "this principle of excluding the air be fairly established as the great desideratum, it becomes comparatively a matter of indifference, what are the means by which we effect this end: not wholly so, however; as unquestionably experience teaches us that in the more severe burns certain medicated applications exert a very beneficial influence. When the object is only to exclude the air from the denuded surface, and the burn is not very severe, one of the best applications is a liniment composed of lime water and linseed oil; if fine linen be employed, well moistened with this, it will be found to answer every indication. The lime which is held in suspension completely fills up the interstices of the cloth, and effectually excludes the air; whilst the oil renders it so pliant that it may be accurately applied to every surface and cavity. The same effect may be produced with the superacetate or the carbonate of lead, and oil, where the denuded surface is not considerable. This effect of the lime or lead in closing the interstices of the linen is very similar to what occurs in the well-known experiment of immersing eggs in lime water to preserve them sweet for an indefinite time, by closing all the pores of the shell, and excluding the air."

Mr. Earle severely criticises the theoretical views of Mr. Kintish, which he thinks has led to practical errors, but he admits that we are indebted to Mr. K. for many useful suggestions. Mr. Earle recommends, that instead of changing the dressings as advised by Mr. Kintish, that those applied on the immediate receipt of the injury remain unchanged until suppuration commences.

"The patient will thus be rescued," he remarks, "from much unnecessary fatigue, and a renewal of suffering which cannot fail to be detrimental, and produce increased constitutional irritation; and the practitioner will be saved, for some time at least, from being harassed by the distressing screams, which, if the subject be young, he will be obliged to submit to during the subsequent treatment. The practice which I have been long in the habit of pursuing, with very happy results, has been to bathe the parts with warm spirit of turpentine; and, as speedily as possible, to envelope every part most carefully with soft lint, thickly spread with the liniment of turpentine and resin cerate. It is better entirely to surround the extremities when burnt, and to retain the dressings with bandages, accurately but not too tightly applied. This application appears very soothing; and the young patient will often cease to cry, and will even fall asleep as soon as dressed.

"Having very accurately covered every part of the burnt surface with the dressing, the patient should be suffered to remain quiet, and the dressing should not be disturbed for many days—not, indeed, until suppuration is fully established. If, on removing the dressings, deep sloughs present themselves, there is no better application than warm emollient poultices."

After the separation of the sloughs the wounds must be dressed, and treated like common ulcers.

It is often requisite, after the receipt of any considerable burn, to administer

some cordial internally combined with the opiates; but Mr. E. justly reprobates the continued administration of stimuli after reaction has been established.

"Whenever," he observes, "the pulse is small and feeble, the extremities cold, and there exists a disposition to rigors, it will be right to administer some warm brandy, or wine and water, or ammonia, with from 5 to 60 minims of laudanum, according to the age of the patient. When the vital powers are not depressed, and the patient suffers much, the opium may be given without the spirit. Considerable judgment is required in administering cordials. The great advocate for this plan, Mr. Kentish, appears to have entertained some very visionary notions, which are mixed up with his really valuable and practical observations. He advises the giving powerful stimuli internally, on the principle of counter-irritation; and he advocates the perseverance in their use for several days, until secretion has taken place. It is true that he adduced some strong facts in illustration of this plan; but I could produce equally powerful arguments to prove that such a practice is most injurious and directly opposed to the dictates of common sense, and all the principles laid down for the treatment of inflammation. To adduce one memorable instance in which this stimulating plan was most injuriously persevered in, I will mention the cases of the firemen who suffered at the burning of Covent Garden Theatre. Several of these unfortunate men were admitted into this hospital, and died with every symptom of inflammation of the membranes of the brain and mucous linings of the lungs.

"The stimulating plan was carried to too great an extent in these cases, which was fully proved by examination after death. If the vital powers be greatly depressed you may administer a cordial, and even repeat it until reaction has taken place; but when once that has occurred, it can rarely, if ever, be necessary to persevere in such a plan. When the first stage is passed, light and nutritious farinaceous food should be given, and the bowels gently regulated: opiates will often be required for some time, to allay the irritation and pain. Diarrhœa sometimes supervenes, and is occasionally beneficial when the discharge is very copious. From observing the occasional good effects resulting from spontaneous diarrhœa, when the discharge was profuse, in accelerating the healing process, Mr. Kentish strongly recommends the free use of purgatives under such circumstances, and I have known them very useful. The spontaneous diarrhœa, however, requires to be very carefully watched, as it may arise from a destructive inflammation of the mucous membrane of the bowels, which may require all our efforts to controul."

The following is a summary of the plans of treatment recommended by Mr. E. in the three degrees of burns:—

"In cases of the first order, where the skin is not broken, it matters little what plan you resort to, provided the extent of surface be not great. When either of the extremities are the parts affected, cold may often be very advantageously employed, provided there be no contra-indication from the state or constitution of the patient. When the surface is considerable, including any part of the trunk, as from a person falling into a vat of hot liquid, there would be danger of continuing the application of cold; though it would be quite justifiable to plunge a person under such circumstances, with all his clothes on, into cold water, if ready at hand: still there would be danger of inducing inflammation of the serous or mucous membrane of the chest and abdomen by the continuance of it. This circumstance should indeed be always carefully borne in mind, whatever be the treatment employed, as one very likely to occur in extensive burns, from the impaired functions of the integuments of the body, by which an additional burden is thrown on the lungs especially. You are well aware that, in a state of health, there is a constant transpiration going on from the whole surface. When this is checked by sudden cold, pneumonia, pleurisy, or peritonitis, not unfrequently ensue. Exactly the same effect is produced by extensive burns or scalds, which necessarily interfere with this most important function

performed by the skin. When you have reason to suspect any of these consequences, bleeding, both local and general, may be required: but, generally speaking, salines, particularly small and repeated doses of nitrate of potash, by increasing the action of the kidneys will render this unnecessary.

"In the second order of burns and scalds, when there is more or less of the cuticle destroyed, and the highly inflamed cutis exposed, it is right as soon as possible to exclude the air; and for this purpose, I believe you will find the lime-water and linseed oil a very efficacious remedy. When the vesications are very large, and cause pain from their distention, and when there is danger of their bursting from their bulk or situation, it is advisable to puncture them with a needle at several points, in the direction of the scales of the cuticle; this will allow of the escape of the serum without admitting the air to the cutis. But in all minor cases it is not necessary to do this, and whenever you can with safety leave the bladders untouched for one or two days, it is far better than puncturing them. By carefully pursuing this plan you will in most cases avoid that serious ulceration and sloughing, which so frequently follows the exposure of the inflamed cutis. The fluid will often be entirely absorbed, and the cuticle peel off, leaving the surface quite healed beneath it.

"In the third order of burns, it is but justice to Mr. Kentish to say, that I know of no plan of treatment superior to the one which he recommends at the time of the accident. His treatment, however, must be modified in the after stages, and on no account followed up day after day, under the visionary and erroneous impressions which he entertained. It is hardly necessary for me to observe here, that it is a matter of perfect indifference what application be made to those parts which have already lost their vitality; it is to the parts in the immediate vicinity, those parts which are in the highest state of inflammation, bordering on sphacelation, that you must direct your attention; and from extensive experience I may affirm, that the employment of the stimulating dressings of Kentish will be found preferable to any other plan. Having taken the liberty freely to criticise his more visionary views, it is but justice to give him this share of praise, and to express my individual gratitude to him for the benefits he has conferred on mankind." * * *

"In the slighter cases of burns, when the cutis only has been exposed and not destroyed, if the first dressings be very nicely and accurately applied, they may be safely left on for many days; until, indeed, they become moistened or offensive from the suppuration which has taken place. We shall often, on removing such dressings, find the greater part of the surface skinned over, and the rest of the wound presenting a healthy granulating surface, or covered by a coating of coagulable lymph. Under these circumstances, it will only be necessary to employ some mild application, as the unguentum zinci oxydi, or ceratum calaminæ, the same attention being paid to apply the dressings accurately to every part; and these may be again left until they are quite moistened with suppuration. Perhaps every second or third day will be sufficiently often to renew the applications. In some instances the suppuration will be so abundant as to require daily dressing; and in such cases it will be found very advantageous to dust the surface of the wound with a powder consisting of equal parts of myrrh and calamiæ very finely levigated; and dry lint may be applied upon the ulcer, care being taken to keep the lint within the margin of the sore. This latter point is one of much importance, and certainly not sufficiently attended to. As it applies equally to other ulcers, as well as those arising from burns, I shall venture to dwell a little on this point of practice, and explain my views more at length.

"On examining a healthy healing ulcer, we shall always find at the circumference a marginal line of deep red, which has a smooth polished appearance when closely viewed, differing from the irregular granulating surface. This is the newly-deposited skin: and becomes more apparent after an ulcer has been exposed for some minutes. If dry lint, which is often the best and only stimulus wanted for a healthy sore, be applied over this margin, it will adhere so closely

to it, that, unless great care be taken to moisten the dressings, in removing them the newly-deposited skin will be destroyed, and the surface will bleed; causing considerable pain to the patient; and thus destroying, in one minute, a whole day's reparation. This may be effectually obviated by one of two plans: either by applying narrow strips of lint, smeared with some unctuous substance, round the whole margin of the wound, and filling up the interspace with dry lint, over which a large pledget should be applied, to exclude the air, and prevent the pus which is secreted from encrusting on the wound; or by accurately fitting the size of the lint, so as not to encroach upon the margin of the wound, and then covering the whole with a pledget larger than the entire surface. When the shape of the wound is very irregular, it will be well to make a pattern of it in paper, and, from day to day, to cut the lint smaller as the edges contract. This will often save much time in adapting the lint to the proper form and size, and will afford a gratifying proof of the daily progress towards a cure. By adopting this simple plan, the whole dressing will come away at once, without causing the slightest pain to the patient, and without requiring the use of water to moisten the applications. This leads me to say a few words with respect to the common practice of washing ulcers; a practice certainly to be reprobated when the secretion is healthy laudable pus, which is nature's best protection for the delicate newly-formed granulations. When this is not secreted in sufficient quantity daily to moisten the lint so as to enable it to come freely away, it will be better to leave the dressing for two or more days, and to apply some mild stimulus. In all cases, however, let me earnestly advise you to attend to the rules laid down with respect to the margins of the sores. Remember that it is always from the circumference that a wound heals; and this, therefore, is the part which requires most attention. Be careful to keep the newly-cicatrized surface clean; do not allow the cerate or discharge to collect and encrust upon it; and especially guard and protect the exceedingly delicate healing margin by the application of some mild cerate which will not adhere to it. If, during the progress of the case, the secretion becomes thin and ichorous, and the wound has a glossy even surface, it will be right to employ some more stimulating application than dry lint; and for this purpose the lotions of nitrate of silver and sulphate of zinc will be found very useful: sometimes it will be necessary to vary such applications, and it is well to have many resources to resort to. At times, balsamic applications will agree best, as the Peruvian balsam, or compound tincture of benzoin; at other times, diluted resin cerate, or ung. hydrargyri nitrico oxydi, &c. When the granulations are too prominent, lint dipped in a solution of sulphate of copper will be found very efficacious. When, however, the ulcerated surface is very extensive, it will not be necessary to apply stimulants constantly to the whole extent: you should in these cases bear in mind that it is only from the margin that the wound contracts and heals; and it will be sufficient, therefore, to draw round a stick of nitrate of silver or sulphate of copper just within the healing margin, without endeavouring to repress the exuberant growth of the whole surface, which will cause unnecessary pain, and exhaust the powers of nature.

"In some cases the *emplastrum plumbi*, either pure or diluted with olive oil, and spread on linen, will be found an excellent application in accelerating the healing, and keeping down the granulations. It is difficult to lay down rules applicable to all constitutions and every variety of case. It will be sufficient to say, that ulcers following burns are often very irritable, and require a change of applications from time to time."

Mr. Earle also advises, that whenever the surface of the wound is very considerable, that the whole be not exposed at once, but one part dressed first before another is opened; and that the new dressings be always prepared before the old ones are removed.

"In burns of a more serious nature, where large and deep sloughs present

themselves on removing the first dressings, the best possible application will be a soft emollient poultice, until such sloughs are thrown off. After that they will require a similar plan of treatment to that which has been recommended in the ulcerated form of burn. Occasionally, however, it happens that the surface presented on the first coming away of the slough is that of a very highly irritable ulcer; instead of fine healthy granulations, the surface presents a worm-eaten appearance, and many points bleed, and are exquisitely sensible. I have found, in such cases, that it is better to continue the poultices for a few days, and to apply to the surface a watery solution of opium, sometimes with the addition of a few drops of nitric acid. Such ulcers will often require a similar plan of treatment to that employed for phagedenic sores. When the ulcer becomes more healthy, and good pus is secreted, then you may resort to the plan which has been already sufficiently described. The constitutional treatment of burns during this second stage will require to be varied according to circumstances. The diet should be regulated, and the state of the digestive organs closely watched. Stimulants generally do harm, whether in the shape of food or medicine. Occasional purgatives are very beneficial; and when the secretion is very abundant, the mineral acids, with or without bark, will be required."

It is well known that in consequence of the contraction of the cicatrix, that the most distressing deformities often occur, especially when the burn has occurred in the flexures of joints, and in the front of the neck. Mr. Earle has known the chin drawn down upon the sternum; and the shoulder approximated by the partial absorption of the clavicles—the forearm permanently bent upon the arm, so as to bring the thumb in contact with the point of the shoulder, &c. These deformities Mr. E. asserts may by due attention be generally avoided.

"I am quite ready to admit," he observes, "that it is not in our power to arrest the law of nature by which a cicatrized surface becomes smaller, and occupies less space, than the original wound; but it is in our power, in most cases, to direct and modify that which we cannot wholly prevent, and thus, at all events, to counteract its injurious effect. We cannot prevent the process of absorption which has been described, but we can prevent its taking place in a direction which may interfere with the healthy functions of the part. To take the upper extremity as an example, I will suppose a case where the whole integuments on the inner and front part of the arm and forearm have been destroyed. If such extremity be carefully kept extended on a splint, not only during the whole progress of healing, but long subsequent to the perfect cicatrization, you will find that the cicatrized surface will diminish in a circular direction, drawing the healthy integument together from side to side; but that no contraction will take place in the long axis, in which alone it can impede the due motions of the limb. This permanent extension should be persevered in during the day and night, until all changes have ceased, and the cicatrix has contracted to its smallest dimensions. Care, however, should be taken, during this time, to give passive motion to the different joints; by which the proper secretion of synovia will be kept up, and the eventual free use of the limb will be ensured.

"This plan of maintaining the limb in a state of permanent extension should be commenced as soon as the wound has begun to granulate, and should be persevered in, as before stated, until all changes in the cicatrix have ceased. If this be not commenced thus early, the joint will soon be found greatly bent, and any attempt to extend it will then be productive of pain, and will cause the wound at the flexure of the joint to bleed—perhaps to slough. I am aware that many persons permit such limbs to remain in a bent position during the healing process, from an idea that there will be a smaller extent for cicatrization by thus allowing the ulcerated surfaces to approximate each other, and that they thereby will much accelerate the healing. By such practice the permanent benefit

will be sacrificed, to remove a temporary evil; the wound may possibly be healed sooner, but the limb will for ever after remain stiff and useless. In very many cases, however, not only will most serious injury infallibly accrue from such practice, but even the temporary advantage proposed to be gained will prove entirely fallacious; for every attempt to extend a limb which has been thus treated, and which has formed an angle, will crack the cicatrix, and cause it to ulcerate and slough on its surface, even for months after the apparent healing of the wound. If, therefore, any argument were requisite, in addition to that of preventing deformity and lameness, to induce you to bestow great attention to position, during, and long subsequent to, cicatrization, in all instances where the wounds are in the neighbourhood of joints, I am fully convinced, from extensive experience, that you will thereby gain much time in effecting a permanent and perfect cure. In the one case, where there is any constant stress on the cicatrix, it will become diseased and indurated, and liable to crack and ulcerate; in the other case, where no such strain is applied, the wound will heal more rapidly, and the cicatrix will be far more soft and healthy."

In endeavouring to counteract contractions in different parts of the body, very different modifications of splints and a variety of apparatus will be required, which the necessity of each particular case will dictate. In cases of severe burns of the extremities, including the flexure of any joint, the employment of permanent extension on splints will commonly be sufficient to answer every indication; but in burns about the neck, and at the lower part of the abdomen and groin, much ingenuity will sometimes be required to attain the desired ends. It may, however, occasionally happen, that all our efforts will prove unavailing, and an unseemly cicatrix and permanent lameness will be the result.

"In such cases, which have resisted all our efforts to prevent these disastrous occurrences, it will be in vain to attempt, by operations, to correct the evil; for the same difficulties which opposed themselves in the first instance, will equally baffle all our efforts at remedying the existing defects. Cases are, however, too frequently occurring, where most unsightly deformities and serious lameness are the results of inattention, and a total disregard to the rules which have been laid down as necessary to be pursued to prevent such consequences; and many of these cases admit of being partially, if not wholly, restored, by a plan of treatment which I shall now proceed to detail. It will be right, in the first place, to offer a few observations on the structure and nature of the diseased and indurated cicatrices which follow the healing of burns. Whenever any unnatural contraction follows a burn, the cicatrix becomes more or less indurated and callous; sometimes to a most extraordinary extent, so as to merit the epithet of scirrhus. To what are we to attribute the more frequent occurrence of such indurated contraction after burns, than after any other description of ulcers? This is a question not easy to solve; but I believe it, in many cases, to depend on the constant state of irritation and chronic inflammation which is kept up by the continual stretching of the part affected, in the vain attempts made to extend the limb. That this may fairly be considered as one fruitful cause of such defects, may be inferred from the fact, that when a limb, under apparently similar circumstances, is kept extended during and after the healing, no such diseased cicatrix will result. Still, however, it must be admitted that, in some parts of the trunk, where no such contraction can operate, the cicatrices after burns form prominent ridges, and are morbidly hard; probably in consequence of the extensive destruction of the subcutaneous cellular tissue. This will at times amount to an increased morbid growth, to a considerable extent, which will have, when cut into, all the characters of a true scirrhus. Such a case occurred to me, some years since, in the person of the young female, of whose neck I now present you a drawing, exhibiting prominent pendulous tumours, one of which I removed, and approximated the healthy integu-

ments, in hopes of obtaining union by first intention. Erysipelas supervened, and the surface granulated; and after it had healed, the same diseased growth returned nearly to the same extent. This is the only instance of the kind which I have met with, and it appeared to depend on some peculiarity of the individual, & the whole original cicatrix was freely removed. When such a horny web or cicatrix, as I have described, has contracted any joint, or the neck, it would appear, to a superficial observer, that the whole evil depended on the contracted integuments, by a simple division of which the limb would be instantly set at liberty. So deceptive is this appearance, that I have known, more than once, that surgeons have indulged this vain hope of affording relief, until a painful and ineffectual operation has convinced them of their error. In recent cases, occurring in any of the extremities, the contraction may be confined to the integuments, by dividing which the deformity may for a time be removed; but the same cause continuing to operate, will produce the same effect, and the cicatrix will again contract after the wound is suffered to heal up. When the contraction has been of longer duration the muscles acquire a new sphere of action, and afford an additional and powerful opposition to the free exercise of the limb. Lastly, in some cases we find that even the bony fabric becomes moulded and altered by the powerful constriction exerted on it by this gradual but certain process. In such cases it is hardly necessary to add, that the most severe operations cannot afford a prospect of even temporary alleviation. From having witnessed several such operations, and the repeated and ineffectual transverse division of such contracting bands, I was induced to adopt a different mode of proceeding in a case which fell under my care, at the Foundling Hospital, in the year 1813. Being aware of the inefficacy of the transverse incision, I removed the whole diseased cicatrix, and endeavoured to approximate the healthy integuments from the two sides of the arm, which was kept extended on a splint, not only during the healing of the wound, but for a considerable time after the new cicatrix had formed, until, indeed, all those changes which I have described had been fully accomplished. By such a practice, I conceived that the contraction, which I knew must follow so extensive a wound, would take place in a lateral direction, and not in the long axis of the limb: in a word, I hoped to be able to *direct and modify* that which it was not in my power to prevent. The success which attended this operation exceeded my most sanguine expectation. The boy's arm was perfectly restored, and remains straight to this day."

Mr. Earle has since successfully operated upon more than twenty cases. The happy results of the first operation led him to apply the same principles to the *prevention* of such accidents, by regulating the direction of the contractile process during and after the healing of large wounds in the neighbourhood of joints, and with the best possible effects.

— Mr. E. has found the ingenious apparatus invented by Mr. James, for maintaining the chin elevated after operations for relieving contractions of the neck, with certain modifications, most beneficial also in preventing such contractions. In slighter cases, the wearing, night and day, a stiff soldier's collar, will be a sufficient protection against contraction, provided the integument immediately below the chin be not hurt. Contractions of the fingers, hands, and arms may be often restored at a very distant period from the receipt of the injury. Mr. E. relates one case relieved which had existed for sixteen years.

"In performing operations for the removal of contractions, it will generally be better to excise the indurated cicatrix, although in some cases it may be divided on both sides, and dissected upwards or downwards, leaving it attached at one extremity; some portion will thus be retained, and the extent of wound will be less. In several cases, however, where this has been attempted, the detached cicatrix has sloughed, and no time has been gained. As the cicatrix is

not a part of original formation it possesses less vitality, and is often very imperfectly nourished; when, therefore, only partially detached, it will generally perish. It often happens, that but little apparent good is effected at the time of the operation; but, by gradually extending the limb, in a few days the muscles and soft parts yield, and the contraction will be gradually removed. This occurs in a marked degree in contractions at the elbow, and of the wrist and fingers. Too forcible an extension should not be attempted at first; but, with the assistance of graduated splints, a little may be gained from day to day, until the limb is perfectly restored.

"It has been stated, by some surgeons, that this plan will not succeed permanently, and that the contraction will return after an apparent cure. In reply to such objections, I can only state that, in my own practice, I have never met with such a failure; and that I have investigated, with care, the alleged cases of return, and have, in each instance, satisfactorily proved, that the failure arose from the want of perseverance in the plan after the closing of the wound.—From a want, indeed, of a sufficient knowledge of the principles on which the practice is founded, or a want of sufficient perseverance and patience on the part of the surgeon. I have been lately informed that, in some cases, Mr. Hodgson has succeeded, by mechanical extension, in removing the contraction, without any surgical operation. I have no doubt that this may be effected in some cases. I have lately adopted this practice, in two instances: the first was for a contraction in front of the neck, which was greatly benefited by the girl wearing a very firm collar for a considerable time; the other patient is, at the present time, in the hospital, in Harley's ward: a lad, who had been burnt with lightning, came in with his knee-joint contracted, nearly to a right angle; with the assistance of a powerful double screw the leg has been extended; but in this latter case the whole cicatrix has ulcerated, and the tendon of the biceps muscle can now be seen. In this instance I do not think any decided superiority can be claimed in favour of the extension in preference to excision, as the present wound is as large as would have been made by the operation, and more time has been lost."

Mr. E. states, that in looking over the pages of Hildanus, he was struck with a rudely executed wood cut, delineating an apparatus for restoring a contracted hand; and on further investigation, he found that this writer had perfectly succeeded in a very bad case of retroversion of the finger from burn, in completely restoring the use of the hand, partly by an operation, which was succeeded by a simple but powerful mode of effecting permanent extension.

Although we have already borrowed so largely from our author, we must be permitted to quote his concluding observations, because they display an instance of candour which reflects more honour upon him, than would the establishment of the claim to originality in the mode of treatment. He states; that in reading Hildanus, he—

"Found some admirable directions for retaining the limbs extended whenever the injury occurred in the neighbourhood of important joints; directions which modern surgeons would have done well to adopt. I further found that, in his chapter on burns, nearly all the boasted improvements and suggestions of later days were mentioned, although, from a want of knowledge of the properties of the absorbents, and other modern discoveries, the facts are explained on erroneous principles. It affords me much pleasure to rescue from oblivion the well-earned reputation of this celebrated surgeon, and, in relinquishing my own claims to originality in the operation, to render him that praise to which he is so justly entitled:—*'Palmar qui meruit, ferat.'*"

QUARTERLY PERISCOPE.

FOREIGN INTELLIGENCE.

ANATOMY.

1. *Remarks upon the Anatomy of the Mucous Glands of the Small Intestines.* By F. LELUT.—The older anatomists, for example, Galen, Vesalius, Riolanus, Willis, Glisson, &c., referring to the theories of the time, all that was known of the structure and uses of different parts, and regarding the sub-diaphragmatic digestive mucous membrane as an organ of secretion, supposed that it contained glands in its tissue, or indeed that it was itself entirely glandular. At a later period, this view of it seemed to be confirmed by the microscopical researches of Lieberkuhn, who transformed into glands the villousities of the gastro-intestinal mucous membrane. But there is a wide difference between this designation, in some degree theoretical, and a correct anatomical investigation of them; and Willis and Pechlin may be considered amongst the first anatomists who described with correctness the mucous follicles of the alimentary tube, and regarded them in their proper light; yet their plates represent them only as they are to be met with upon the exterior surface of the intestine. Since their time, Malpighi, Duverney, Wepfer, and a number of others, but particularly Peyer, have described with so much exactness these little organs, that their observations will serve as a basis to all future researches that may be made upon this subject.

The glands of the small intestines are, next to the follicles of the large, of all those of the digestive tube, the most simple in their composition. This is particularly the case when we compare them with those of the duodenum. We might with propriety represent them as mere *crypts* or *follicles*, or as nothing more than simple reduplications of the mucous membrane, the parietes of which contain glandular matter in scarcely an appreciable quantity; whilst their bases attach, or rather lose themselves in the nervous tunic of the intestine. This general view of the composition of a follicle is the basis of the theory of Malpighi, and is the one which, according to his own statement, he applies to the structure of the viscera in general.

The intestinal glands, when examined in reference to each other, present themselves under two principal and opposite forms; they are either isolated or grouped together in numbers; and in the latter case, the form of the group, according to Peyer, is generally oval or almond-shaped. But these two forms are often blended together, and in the case where the gland appears to be completely isolated, it is very unusual for us not to find upon examination several orifices, and of course several follicles collected together in a group. This is more readily seen when the intestine examined is in a pathological state, in which case these glands are greatly developed, their cavities filled with an unusual quantity of mucus, and the circumference of their orifices distinguished by a blackish spot, as Melanique, Röderer, and Wagler have beautifully deli-

neated. Besides these follicles, more or less isolated, or collected in groups of two or three only, and the ovoid plates, the largest of which are from three to four inches in length, there are other groups varying in shape and size, discoverable. Some of these are perfectly circular, others polyangular, whilst others again resemble two ellipses connected to each other by one of their sides.

Agglomerated follicles. The appearance which these glandular agglomerations present with respect to the development of their cryptæ, is not always the same. That which seems to me to be most usually met with, and most natural, is where the plate appears to be composed of a multitude of small points nearly circular, of about the sixteenth or tenth part of a line in diameter, separated from each other by thin membranous septæ of the same breadth, which causes these groups to resemble very much in appearance a piece of lace. These are the reticulated plates which modern writers have mistaken for pathological changes. These circular points are not, thing more than the orifices of the glands, the bodies of which are in contact with each other beneath the mucous membrane. When we examine them by transmitted light, they become more visible, because the intestine in this spot is thinner, and we may frequently, especially in new-born children, introduce the point of a fine needle, or hog's bristle into them. We may also by pressure force out from their extremities small drops of mucus, very small to be sure, but nevertheless sufficiently manifest. If this result is more rarely observed, when the experiment is made with the isolated follicles, (at least when there is a pathological development of them,) it may possibly be attributable to the contraction of the mucous membrane, by which the orifice of the follicle is stopped up; whilst in the plates, the adhesion of the glands to each other prevents the membrane from so contracting, and in this way keeps their orifices open.

The agglomerated glands of the intestine often present themselves under a more simple form than the preceding, but which seems to me to be as certainly normal: although it may be mistaken for superficial ulceration of the mucous membrane, or for the cicatrix of some previous ulceration. In this form the plate presents in truth the appearance of net-work, the meshes of which are very large and formed of extremely tenuous threads. It seems, in this instance, that the mucous membrane is but barely depressed to form these cryptæ. It is a collection of very small, scarcely perceptible circular depressions, the bottoms of which correspond in size with their orifices, and which bear a striking analogy to the cellules that Ruysch observed in the mucous membrane of the stomach, and to those that Santorini describes as occurring in the duodenum, and which I have observed twice in the same situation.

To the two preceding forms may be added or opposed a third, which may perhaps be equally as normal, but which for the most part should, I believe, be attributed to an unusual development of the glands constituting the plate. This is here very much raised above the level of the mucous membrane, and may be either regular or irregular in its form. These follicles have become in some instances very much enlarged, and their orifices often so much obstructed, that the employment of desiccation, or any other means in our power, will be insufficient to make them manifest. Sometimes several in the same plate are very much increased in size, and as it seems, at the expense of the others; these orifices in these cases are easily distinguishable.

The colour of the glands of Peyer is generally whiter than that of the rest of the mucous membrane. Occasionally in the same, or in different intestines, and without these viscera being ostensibly in a pathological state, I have seen them offer a variety of tints. I have met with them grayish, bluish, brownish, greenish, and in the latter instance coloured by bile, which rendered the orifices of their constituent follicles more apparent. Their number is variable. Peyer reckons from ten to forty. Meckel gives as a medium number thirty; M. Louis from twenty to thirty. All these different valuations are correct; but their

number may very much exceed, or not come up to the numbers stated. Several times I have been able to count from fifty to sixty of these plates or discs; and Bruhner seems to have made some observations of a similar nature. At other times I have found but eight, five, two, one, and in a solitary case, that of a new-born child, I was unable to discover a single one. Peyer met with a similar case, that of a hydrocephalic infant. With a little care it is extremely easy to make a correct estimate of the follicular plates of the small intestine; the only difficulty that presents itself occurs at the commencement of the jejunum, where the valves are very much crowded together and greatly developed. But the error will not be very great, for it is in this intestine that these plates are least common, and often do not exist at all. Peyer however speaks of a circular follicular plate, existing in the middle of the duodenum, and has given a sketch of it. Pechlin and Brunner have observed the same thing, and I myself have met with three cases in which it existed. I have also seen several examples of the plates commencing with the jejunum, and in other cases I have discovered the first plate at only a few feet from the valve of Bauhin; but in the majority of cases they commence about the termination of the first third or half of the jejunum, and are more or less crowded together in proportion to their numbers and length. The last few inches of the small intestine, and the superior surface of the valve of Bauhin, are in many instances nothing more than one vast follicular plate.

Peyer, Morgagni, Haller, Meckel, all anatomists have, and with propriety, described these glands as situated upon that surface of the intestine which is opposite to the attachment of the mesentery. I thought in two instances that I had discovered an exception to this arrangement, but a more minute examination convinced me that the group merely bordered upon the edge of this insertion. In dividing with an *entérotome* the intestine of a cat, along the line of this insertion, I cut in two a large follicular plate. This is the only case of the kind I have ever met with.

Winslow believed that the valves of Kerkringius did not stop on a level with the plates. Peyer, Haller, M. Billiard, and M. Louis contend that they do, and their opinion is nearer the truth. In fact, when we examine the relations of these two different organs one with another, we must be of necessity struck with the sudden diminution in size of the *valvula conniventes* in the neighbourhood of the agglomerate glands. But it is merely a diminution, and not an entire disappearance, as was formerly erroneously taught by Peyer. In the jejunum where the valves are very numerous, this is sufficiently manifest. These folds, though extremely attenuated, nevertheless traverse the plates, and contain follicles in their thickness. In the ileon, particularly towards its termination, they have almost entirely disappeared, seeming to finish in the neighbourhood of these plates; but when the intestine is coloured by the bile, they may easily be distinguished as lines of a deeper yellow than the surrounding tissue.

With regard to their *seat* in the thickness of the intestinal tunics, the agglomerated glands occupy in some sort a medium position, between those of the stomach, which form as it were part of the mucous membrane, and those of the duodenum, which are situated in the thickness of the cellular tunic, and sometimes upon the outside of it. The glands of the small intestine occupy in fact a position between the mucous and nervous coats, as Willis, Duverney, Wepfer, Peyer, Harder, Varhegen, Haller, Roderer, and Wagler have stated. It is very easy to separate the intestinal tube into two canals, one of which is formed of the peritoneal and muscular coats, by their adhering to each other; the other of the mucous and cellular. All these glands are contained in the latter canal, and may readily be seen through the nervous coat. Should they be a little more developed than usual, they form a sort of mottled or nodular mass, resembling somewhat the exterior surface of the *vesicula seminalis*. In this state, if we dissect them from their external surface towards their internal, we perceive that their tissue confounds or blends itself with the internal.

face of the nervous tunic, forming in some sort a part of it; whilst the superficial portions of their bodies and their orifices are formed by the mucous tunic.

The number of follicles constituting a plate has been variously estimated; thirty, fifty, sixty, or even more, are the numbers given by different authors on this subject. I am able to affirm that they exist in much greater numbers, and the desiccation of one of these plates upon a piece of glass exhibits them to an extent really wonderful. In some plates in which, when examined in the recent state, I could discover but fifteen or twenty distinct orifices, and from one hundred and fifty to two hundred glandular grains, desiccation has demonstrated the existence of at least a thousand follicles. In a plate thirteen lines in length, by two or three in width, I have counted nearly five hundred. In another, seven lines long by two broad, from one hundred and twenty to one hundred and forty. In a circular plate of a line in diameter, from eight to ten. I have all these different pieces, and several drawings taken from dried preparations exhibiting the same thing.

The proper tissue of the glands of the small intestine is sometimes very soft, and as pale as that of the mucous membrane, from which it is not always distinguishable.

After desiccation, each one of these follicles presents itself in a detached condition upon the proper tissue of the intestine, and presents a whitish appearance. They are roundish or oval, and about one-third or one-fourth of a line in diameter; in general they touch each other; sometimes, however, they are perfectly isolated in each disc or plate, and their orifices which have been rendered patulous by drying, are often very evident.

Isolated follicles. Their form, their nature, their disposition in the intestinal tunics, being similar to that of the follicles agglomerated in plates, all that we have to consider at present, is their number and position upon the internal surface of the intestine.

It has been already remarked, that these isolated follicles are but a continuation of the glands of the duodenum, but there exists between the two many distinguishing marks. The glands of the duodenum are always to be met with; their number could scarcely be greater than it is, and they form in most instances a true glandular tunic. They are very thick, and already perfectly visceral, especially about the pylorus. Their tissue is reddish, they are seated in the thickness itself of the nervous coat, and often also upon the outside of it; they cease almost always in a somewhat abrupt manner, about the termination of the ductus choledochus and ductus pancreaticus, &c. &c. Often on the contrary, not only the termination of the duodenum, and of the jejunum itself, offers no traces whatever of isolated follicles, but none are perceptible in the whole of the small intestine. When they are met with, unless morbidly developed to a considerable extent, they are much more blended with the mucous membrane than those of the duodenum. They are also much smaller, their tissue much paler, much softer, much less glandular, &c.

The number, the existence even of these isolated glands of the small intestine, are therefore circumstances by no means fixed. When the plates of Peyer exist in the most perfect state of simplicity, it is by no means uncommon for us to be unable to discover a single isolated follicle, or at most a few here and there, which desiccation alone renders visible. They are particularly evident in those cases in which the glands are in a state of turgescence, or else in the neighbourhood of plates in a pathological condition. Röderer and Wagler have observed this development of the isolated cryptæ in the jejunum of those dead of acute mucous fever. In some cases, and I have seen many examples of the same thing, these cryptæ exist in large numbers, and are exceedingly well-marked in cases where the plates are but rarely perceptible, and where they exist in the most perfectly normal condition. In similar cases, where I have examined different portions of intestine after desiccation, I have counted from eighty to one hundred of these isolated glands in the space of a square

inch. Some of the dots which marked their position were extremely small, but nevertheless perfectly demonstrable.

For the most part, the isolated follicles are to be met with in the interspaces of the valvulæ conniventes; they, however, in some cases, also occupy the surface of the valves themselves. Rœderer and Wagler have given a case of this kind, as a type of several others which they have met with. With respect to what remains to be said of these glands, we may simply state that they correspond in all respects with those of Peyer. They are in general more numerous as we approach the termination of the intestine. Peyer has met with them upon the upper border itself of the valve of Bauhin, and every one may satisfy himself of the correctness of this observation. They are, on the contrary, with difficulty discoverable in the upper part of the jejunum, on account of the size and close proximity of the valvulæ conniventes in this intestine; and in most instances, for us to be able to see them in the recent state, it is necessary that some pathological development should have rendered them more apparent than usual.

The isolated follicles are situated indiscriminately over the whole circumference of the intestine, upon the line even corresponding to the attachment of the mesentery. This constitutes a distinguishing characteristic between them and the glands of Peyer, and possibly explains the cause of our finding in some instances ulceration existing over the mesenteric insertion.

In *new-born children*, as well as in the fœtus of seven or eight months, Peyer remarks as a general rule, that all the glands of the digestive mucous membrane are as constantly to be met with, and are found in as large numbers as in the adult. Another fact which appears to me to be as general, is, that these glands considered separately, are often as large in the infant as in the adult; and in every instance are not more than one-third or one-half less voluminous, notwithstanding the size of the infant does not more than equal the fourth part of that of the adult; and that its alimentary tube in proportion is not much greater. We should also remark, in the third place, that the digestive mucous glands in the infant, even when they are grouped together, are more isolated, more distinct, and have their excretory orifices more appreciable than in the adult.

In the infant, the number of follicles in each plate or group, at least equals the number met with in the adult, and the plates themselves exist also in as large numbers. These last, the plates, in the infant of some weeks old, say from three to four months, have several times been found of more than two inches in length, whilst in the adult, the glands of Peyer of the largest size are not more than from three to four inches in extent; and in most instances much less. For the most part it is impossible to distinguish them by their length from those of the infant.

It results from these observations, that, relatively to the length of the small intestine, or length which is proportionate to its circumference, that the number of follicular groups in the new-born child is almost four times as great as in the adult; and that the sum total of their cryptæ is nearly three times as large. The lower orders of the mammalia, those at least which I have examined, also exceed man in the number of their mucous intestinal follicles, but in a lesser proportion. Nevertheless, in man, the sum total of these follicles of the small intestine is immense. Thirty glandular bodies, each containing as a medium number five hundred follicles, make when multiplied together fifteen thousand. We find in some cases one hundred, and always at least fifty of the isolated follicles contained in a square inch of intestine. The surface of the small intestine having almost five hundred times this extent, (that is, it contains about five hundred square inches,) gives when multiplied by fifty, twenty-five thousand as the whole number of isolated cryptæ; if we add to this the fifteen thousand agglomerated follicles, we have as a result forty thousand, which may be considered as the whole number of mucous glands contained in the small intestine.

* I have given perhaps somewhat too high an estimate of these different glands, and I have given it in fixed numbers, for the purpose of more effectually directing attention to the immense number of mucous glands contained in the small intestine. Their numbers attracted the notice of the old anatomists, and they have in consequence attributed to these organs some important agency, either in the performance of the functions, or in the productions of the diseases of the intestinal tube. Willis, Swammerdam, Glisson, Cole, Jean de Muralt, believed that the glands of the small intestine were concerned in a manner more or less exclusive in the elimination and absorption of the chyle. Peyer sometime ago overthrew this doctrine. He as well as Duverney suppose that the substance secreted by these organs performs in the small intestines the office of the bile and pancreatic juice in the duodenum; that is to say, it serves to separate the chyle from the stercoraceous matter in this portion of the intestinal tube, and assist moreover in the more rapid expulsion of the latter. This view of the subject is most generally and exclusively adopted by modern physiologists.—*Gazette Médicale, June, 1832.*

2. *Anatomy of the Optic Nerves.*—M. OZANAM, of Lyons, has minutely investigated the origin and course of the optic nerves, in the ox and in the human species. It results from his researches that they arise from the centre of the nates, from which they pass out as a small white filament. In the ox this filament is sent off from the anterior part of the tuberculi quadrigemini; it is composed of extremely delicate fibrous fasciculi, which pass over the anterior border of the optic thalami and unite to the external corpus geniculum. From thence the two nerves disengage themselves, and become round as they proceed towards the orbits, they afterwards contract adhesions with the tuber cinereum. Arrived at the sella turcica, they form a kind of H, by approximating one to the other, so as to appear to be confounded together, afterwards they diverge to pass to the globe of the eye. These two nerves, which appear united, are nevertheless separated by a portion of very thin membrane, which is a production of the dura mater; it forms a species of sac, full of a white medullary substance, of the colour of cream. This disposition may be seen, by placing this portion of the optic nerves upon a block of black, polished wood, and gradually separating them with a blunt knife after having fixed the four extremities of the nerves. To still further prove this, M. Ozanam placed the second pair of nerves taken from a subject who had died of acute encephalitis, between two pieces of glass, and examined them with a solar microscope. The nerves were cut off three lines before they enter the sella turcica and six lines beyond this point. The spectrum of this portion of the nerves appeared in the proportion of six feet in length, to three in breadth; the two nerves appeared to be eight inches in circumference, and the membrane or intermediate sac two feet large; the whole of the image occupied an area of eighteen square feet.

Each nerve appeared formed of an infinity of small fasciculi or tubes in juxtaposition; it was edged externally only by a kind of fringe, two inches long. The posterior portion of the connecting membrane presented a similar one. These fringes did not exist either at the inferior or anterior portions of the membrane, nor at the extremities of the nervous trunks, it could not therefore be the effect of the section made by the scalpel, and moreover all the parts divided by the instrument, were smooth and even.

It results from this experiment, that the optic nerves do not cross upon the sella turcica. We may believe however, that these nerves if they have not at their origin a decussation of medullary fibres in the optic thalami, have at least a mediate communication by the cerebral pulp and the vessels which nourish them. This communication between the two nerves may also occur on the sella turcica, by that species of small reservoir of medullary fluid, included in the membrane above described, for it is presumable, says M. Ozanam, that this reservoir and the fluid it contains are not without its use.—*Archives Générales, May, 1832.*

PHYSIOLOGY.

3. *Confirmation of the Experiments of Bell, relative to the difference of Function of the Anterior and Posterior roots of the Spinal Nerves.* By Professor MÜLLER, of Bonn.—To demonstrate the correctness of the doctrine of Sir Charles Bell, it is necessary to find an animal adapted for the experiment; this Professor Müller has done. The different physiologists, who before this author engaged in this inquiry, always employed in their experiments warm-blooded animals, and it is conceivable that the pain resulting from the extensive wounds, produced such an effect upon the nervous system, that the results must have been affected, and often even counteracted. Professor Müller, has employed the frog, whose sensibility is less acute, and their tenacity of life greater. If the spinal marrow of this animal is exposed, and the posterior roots, (those of sensibility,) of the nerves of the lower extremities cut, not the least motion is perceived, when the cut roots are excited by mechanical means, or by a galvanic current. But if the anterior roots are touched, the most active movements are instantly observed; these actions may also be induced by the galvanic pile. These experiments the author observes are so readily made, and the evidence they afford so palpable, that they leave no doubt of the correctness of the views of Mr. Bell.—*Notizen aus dem Gebiete der Natur-und Heilkunde. B. XXX. 22.*

4. *Function of the Suborbital and Facial Nerve.*—Professor MÜLLER has instituted a series of experiments on rabbits, the result of which show that the suborbital nerve is appropriated to sensibility, and the facial nerve to motion.—*Ibid.*

5. *On the Conducting Power of Nerves.*—Professor MÜLLER has been engaged in experiments on this subject. The animal he employed was the frog; the results at which he has arrived are the following. The posterior roots of the vertebral nerves, without actually isolating or interrupting the galvanic current, only passively transmit it from one pole to the other, and do not communicate to it a motive impulse; the anterior roots on the contrary not only conduct the galvanic current, but also accelerate it, communicating to it a motive impulse. When the stimulus, whether mechanical or galvanic is applied to the nerves, it produces no other apparent effect to induce the motive or tonic property of the motive nerves. The galvanic property is an entirely different thing from the motive or tonic property of the nerves. The nerves are far from being the best conductors of the galvanic fluid. There are some nerves which do not possess motive powers; the anterior roots of the vertebral nerves have tonic, and the posterior non-tonic properties. The spinal marrow is not simply the union of the vertebral nerves—it differs in certain respects from these last.—*Gaz. Med. T. III. No. 58, from Notizen aus dem Gebiete der Natur-und Heilkunde. XXX. 22*

PATHOLOGY.

6. *Small-pox in a Fetus at Birth.*—M. DENEUX communicated the following curious case to the Royal Academy of Medicine at their sitting on the 10th of July last. A female, who had been previously twice pregnant, and had aborted both times, the first in the third and the second in the sixth month, became again pregnant in October last. She was delivered at her full term in June following, of an infant who was covered with confluent variolous pustules. The feet, hands, legs and thighs were all covered. The mother had been vaccinated; she had never had the small-pox; she had passed the whole period of her third pregnancy on a sofa; and had had no communication with strangers; and small-pox had not appeared in the neighbourhood. The variola in the

child was perfectly characterized, it was in the eleventh or twelfth day of the eruption.—*Gaz. Med. Tom. III. No. 58.*

7. *Venous Pulsation*.—*Singular Effect of Castor Oil*.—Dr. T. OSIER WARD has communicated to the *London Medical Gazette* the following curious case.

"E. B. ætat. 30, was admitted a patient at the Wolverhampton Dispensary, January 17th, 1832. She had been unwell for more than a week with feverish feelings, lowness of spirits, cough, and flying pains in different parts of her body. Three days ago she took a strong purgative, which has weakened her very much, without any relief. She was seen by the house-surgeon, and bled; blood neither cupped nor buffed. I found her the next day with a flushed and anxious face; tongue furred, dry, and aphthous at its edges; bowels open; urine high-coloured; shooting pains in hypogastrium, which was tender to the touch, and also over the chest and upper part of the abdomen; nausea and flatulence; cough troublesome; expectoration viscid, aerated, reddish, containing some pure blood. Chest sounded well on percussion; respiration prurient, very laborious and rapid; pulse frequent, of moderate strength. She is in the fifth month of her second pregnancy, having had a previous miscarriage. Considering her case to be one of fever, with incipient pneumonia in both lungs, I ordered fifteen leeches to the chest, and saline draughts, with opium. The leech-bites bled so profusely during the night as to reduce her to the greatest state of exhaustion; and the bleeding was only at last arrested at some of the orifices by the aid of hot knitting-pins. The blood as it oozed was very thin and bright-coloured; she still had some cough, but all her pain was gone. Her strength was recruited by cordials and nourishment, but she miscarried on the 21st, though without much loss of blood.

"I did not see her again till the 24th, when she was sitting up, and I observed that the veins on the back of her hands, which were greatly distended, pulsated with great violence. The skin being very pellucid, the pulsation was very distinct in the small venous ramifications of the fingers, in which the blood was of the arterial colour; the larger veins being darker, but not so blue as usual. The pulsation extended beyond the middle of the forearm, and was not stopped by pressure upon the veins at any point above, though it was by pressure below the pulsating parts, whether on the fingers or backs of the hands. It was contemporaneous with the real pulse, which was hard and rapid, and not very compressible. It continued more or less marked for three days, and ceased on the evening of the 26th, when the pulse also lost its force and velocity. A few days afterwards her legs became œdematous, but this symptom soon subsided, leaving her only troubled with a cough, which she lost in a few weeks, and she is now quite well.

"It is perhaps not unworthy of remark, that when this patient takes castor oil it does not act as a purgative, but exudes from every part of her body."

The following note by Dr. Elliotson is interesting in connexion with this case.

"In a young lady whom I attended for chronic bronchitis, accompanied by a violent cough, and who ultimately recovered, all the *veins of the back of the hands and forearms pulsated synchronously with the arteries*. An unusual pulsation of the veins, synchronous with that of the arteries, occurred for some days twice in a young man who died of cerebral disease, with constriction of the mouth of the aorta;* once in a middle-aged man, with affection of the head and abdomen, who recovered;† once in a middle-aged man, who died with dropsy and palpitation;‡ and lately in a girl who died with symptoms of hydrocephalus.§ In a case of epidemic fever, the same was observed by Weitbrecht for twenty-four hours;|| and he had previously seen a similar case, but doubted his senses. Haller's remark upon it, is *ego quidem non intelligo*."¶

* *Journal Complementary*, t. xxi. Juin, 1825.

† *Journal der Practischen Heilkund.* Sept. 1815.

‡ *Archiv. für Medicinische Erfahrung*, July and August, 1822.

§ *Haller's Disputations*, t. v. p. 407, 1736.

|| *Dublin Hospital Reports*, vol. iv.

¶ *Elem. Physiol.* t. ii. p. 356.

8. *Effect of Acids on the Blood.*—Dr. HERTWIG has found by repeated experiments with sulphuric, nitric, muriatic, carbonic, acetic, and tartaric acids, performed on domestic animals and birds at the Royal Veterinary School, that all these acids, with the exception of the nitric, produce a dark colour of the blood, both in the arteries and veins. The carbonic acid, and also the vegetable acids, produced a greater effect than the mineral ones. When the acids were introduced into the blood immediately, by injection, the whole mass of blood became darker in a few seconds; even in cases where death did not follow.

Prussic acid, in moderate doses, had no effect on the blood; but when given to an extent which produced difficulty of breathing and dizziness, the blood became at once black, and sometimes even of a tarry appearance. The instant that this acid began to act, the mucous membrane of the nose, tongue, gums, and lips, assumed a dark red colour.—*Lond. Med. Gaz. Oct. 1832, from Medicinische Zeitung, No. I. Sept. 1832.*

9. *Ossification of certain Muscles.*—Dr. HASSE gives a curious account in the second number of the *Medicinische Zeitung*, of ossifications, occurring in the substance of the pectoralis major, and tendon of the deltoid muscle of the left side, in the Prussian infantry recruits, amongst whom it is very common, and generally goes by the name of the “Exercise Bone.” Of 600 recruits, one-half of whom had been one year, and the other half six months in the service, Hasse found 18 with the disease, more or less developed. He does not find the weak and cachectic more disposed to it than those of opposite conditions.

A few days after the commencement of the system of exercise, those predisposed to this disease, perceive a small red painful swelling on the part of the left shoulder, against which the musket leans. If this is neglected, a number of hard, moveable, gland-like tumours are formed in the muscle; these soon change into large masses of a solid cartilaginous consistence; and, lastly, in a period of from four to seven weeks, after the first feeling of uneasiness, the whole tumour is changed into a solid mass of bone, which, according to its extent, impedes more or less the motion of the arm, and often renders the excision of the bony tumour absolutely necessary.

The pieces of bone extracted have been from three to five inches long, and from one to two broad, weighing from 3iiss. to 3i. Their surface is irregular, presenting small processes of bony matter. Occasionally the process was not finished; and the various changes of the red muscular fibre, in one part, into a tendinous shining mass, and in others, into cartilage, which presented points or masses of bone of a regular cellular structure in different parts of its substance, could be observed.—*Ibid.*

MATERIA MEDICA.

10. *Properties of the Caina Root.*—The favourable account given of this substance as a diuretic by François, (*Journal General de Med. May, 1830,*) induced Dr. ALBERS to try it in a great number of dropsical patients in the Charité at Berlin. The rad. cainæ, called by the Brazilians “black root,” (*raiz preta,*) is, according to Martius, the product not only of the *Chiococca racemosa*, but also of the *Ch. unguifuga* and *densifolia*. Its taste is bitter and sharp; its smell nauseous. Administered internally, it produces nausea, and even vomiting, purging, and an increased secretion of the urine and menses. François asserts that it diminishes the frequency and violence of the heart’s action, in hypertrophy of that organ. Spitta, on the contrary, found that it raised the pulse, and caused congestions. Langendorf and Martius speak principally of its purgative and emetic qualities. François, Kapeler, Bally, &c. though they admit these qualities, lay the greatest stress on its diuretic powers, and maintain, that if it act on the bowels, it is always

mildly, and without griping. The doses are ʒij. to the 6 or 8 ounces of infusion or decoction; from 4 to 20 grains of the extract; ʒj. to ʒij. of the tincture; and 20 to 60 grains of the powdered bark.

Of 19 cases of dropsy treated by this root, 5 only had increased secretion of urine, followed in 4 cases by complete cure; but in these the collection of water was confined to the abdomen and legs: there was no organic disease or symptomatic fever. In the other cases, the medicine had no effect on the kidneys or on the dropsy; but, in 12 instances, produced such a diarrhoea as forbade its further employment. Most patients complained of nausea, and a few of vomiting and griping. It was also given in considerable doses to a patient labouring under disease of the heart; but, as it rather increased than allayed the palpitation, its use was given up, after 260 grains had been taken. It was also given to two healthy men, in very large doses, when it caused two or three stools daily, but produced no change in the quantity of urine. From these experiments, Albers joins his countrymen, Langendorf and Martius, in denying its diuretic powers, and placing it amongst the drastic purges, by the side of the *Helleborus niger*.—*Med. Gaz. from Medicinische Zeitung, No. IV. Sept. 1832.*

11. *Liniment for Chilblains*.—The following liniment rubbed upon the inflamed part before a brisk fire, is said to cure the worst chilblains, if they have not ulcerated. Take purified chicken fat or lard, oil of sweet almonds, of each, 12 oz.; yellow wax, 4 oz.; melt together by a gentle heat, pour into a heated mortar, and when nearly cold, take of oil of lavender, 3 oz.; aq. ammoniac, 1 oz.; camphor, 1 oz.; tincture of black mustard seed, 2 oz. The volatile oil is to be mixed with the ammonia, and the camphor dissolved in the tincture of mustard seed, they are then to be poured on the fatty mass in the mortar, and well triturated.—*Journal de Chimie Medicale.*

PRACTICE OF MEDICINE.

12. *Use of Liquid Styrae in the Treatment of Blennorrhœa and Leucorrhœa*.—M. LHERITIER recommends the liquid styrae for the cure of gonorrhœa and leucorrhœa. He states that it possesses all the useful properties of copaiba, and is not disagreeable to the stomach. The form which he prefers is in pills:—*R.* Styrae liquid purif. ʒj., pulv. glycyrrh. q. s.; make into pills of six or eight grains each, of which three are to be taken morning and evening. It may also be given in the form of syrup, made according to the following recipe:—*R.* Styrae, ʒij., Aq. puræ, ℥ij., Saccharum, ℥iv. This preparation is particularly useful in leucorrhœa, which soon yields to its use.—*Gaz. Med. October 2d, 1832.*

13. *Diabetes cured by Tannin*.—DR. GIADOROW relates in the *Annali Universali di Medicina* two cases of diabetes cured by tannin. He gave the remedy in combination with opium, as follows:—*R.* Tannin, ℥ij., Pulv. opii, gr. ʒ. *M.* Div. into three powders, one morning, noon and night. The quantity of tannin was gradually increased to four scruples daily. The first patient was cured in ten, and the second in twelve days.—*Gaz. Med. Sept. 15, 1832.*

14. *Hæmostatic*.—DR. ABENTZ, of Norway, recommends nitric acid as a most powerful remedy for the stoppage of hæmorrhage. In bleeding from a vessel too deeply-seated to be easily accessible, or in false aneurism, he pours eight or ten drops of the nitric acid into the wound.—*Ibid., and Casper Critisches Repertor, l. xxx. c. 1.*

15. *On the External Use of the Cod-Liver Oil, in the Impetigo Scabida, &c.*—DR. MARSHALL HALL, in a note in the *London Medical Gazette*, for September

last, states that in some troublesome affections of the skin, especially of the hands, conjoining the characters of impetigo, with erysipelatous redness and swelling, and inducing the most severe suffering, he has speedily succeeded in restoring the cutaneous textures to a healthy condition by the external use of the cod-liver-oil, after all other remedies had been tried fruitlessly.

For rhagades or chaps it is, he says, a preventive and speedy cure; and it is productive of great benefit in eczema, and other diseases inducing excoriation and fissures of the skin.

16. *Excoriated Nipples*.—According to Dr. BURSHARAT, pyroligneous acid, mixed with white of egg, is an excellent application for excoriated nipples, even when attended with great irritability.—*Gaz. Med.*

17. *Cases of Abscess in the Pelvis, with Clinical Remarks*. By CESAR HAWKINS.—CASE I. *Diseased Sacrum—Fæcal Abscess*.—Elizabeth Bartholomew, æt. 28, admitted June 13, 1832, under the care of Mr. Hawkins. She was confined about twelve months ago, but has not nursed her child, having been obliged to wean it when about six weeks old, on account of sore nipples. About nine months ago she had inflammation of the bowels, which required the application of leeches, and she subsequently suffered from cholera, by which illnesses her health suffered materially. About eight months ago she first experienced pain and tenderness in the left side of the abdomen and groin, followed in a fortnight by swelling; and, about five or six weeks after this, a puncture was made, by which she says two quarts of very offensive pus were evacuated. The discharge continued to be very fætid for a few days, and then became more healthy, and the orifice is frequently quite closed. She has not menstruated since her confinement, but she says that at each menstrual period she has acute pain in the back, with bearing down, and pain in micturition, with frequent desire to make water; and at those periods the abscess discharges, for a few days, a thin fluid unmixed with blood, and then heals up again. She says she has not become much worse in health since the abscess first opened, but is very thin and emaciated, and perspires much, and has a troublesome cough, with mucopurulent expectoration; she sleeps ill, has a bad appetite, and a quick weak pulse. There is no pain or tenderness in the back or loins, and she says she never feels any except at the supposed menstrual periods. Matter can be pressed down from the iliac fossa from a considerable sized cavity, through two openings on the front of the abdomen, near Poupart's ligament.

June 20th. Some fæcal matter was observed to come through the openings.

July 17th. This circumstance was again observed to-day.

July 26th. She has much improved in health under a nourishing diet, with a small quantity of wine and porter, and the use of bark and quinine, with opiates to relieve her restlessness and cough, and once some chalk mixture, on account of diarrhoea. The openings into the abscess have been enlarged, so that the discharge has been free, and it has gradually diminished, as if the cavity was contracting, and she has had no pain since the bistoury was employed.

To-day the discharge has been more profuse, and mixed with fæces; and she has general pain and considerable tenderness over the whole abdomen, with rigors, succeeded by hot and dry skin, and a hard pulse, 120.—Hirud. xij. abdom.; Haust. Salin. Effervescence, 4tis horis.

27th. Relieved by the leeches.

31st. Some return of pain and tenderness, with more profuse discharge, and mixture of fæces; much perspiration and great debility. The openings in the groin, which had contracted, being again laid open, a considerable cavity was found to have formed in the hollow of the ilium and the outside of the hip.—Vini Rubii, ʒvj.; Jusculi Bovini, Oiss. &c. Fetus Papar. Abdomini.

August 23d. She has occasionally had the pain in the abdomen, which is re-

lieved by fomentation, and her wine has not been intermitted. She has also again suffered once or twice from diarrhœa, requiring opiate enemata and chalk mixture occasionally. Her cough has been lately more troublesome, and the expectoration more copious.

September 3d. She has gradually got weaker, and has suffered much from irritation in the bowels, producing frequent diarrhœa. The abscess has lately discharged less pus, but frequently fecal matter. Died this morning.

On passing a director from the wound, which was much contracted, it was found to lead directly upwards towards the spine; and on laying open the cavity of the abscess, which was reduced to a mere sinus, it was found to lead to exposed bone at the upper part of the sacrum, and the under surface of the body of the last lumbar vertebra, the cartilage of which at the posterior surface was softened, and a probe passed behind to the opposite side of the sacrum, which was also exposed and covered with a small quantity of pus. From the general cavity, which occupied the substance of the psoas muscle, a sinus ran outwards in the substance of the iliacus internus, and a portion of carious bone, of the size of a shilling, was found at the centre of the crest of the ilium, but did not extend beyond. Inwardly the cavity extended over the linea ileopectinea for about an inch and a half, and here communicated with the sigmoid flexure of the colon, (which was adherent to the cyst,) by two small orifices, about large enough to admit the point of a common director. The intestines were collapsed and generally healthy, but a portion of ilium, six inches in length, was adherent to the side of the abscess at the margin of the pelvis; recent lymph was deposited on its outer surface, and the mucous membrane was highly inflamed and ulcerated in many places. The uterus was also adherent at this part.

The lungs were much diseased, having several vomica at the apex of each, and tubercles throughout their whole substance.

CASE II.—Diseased Hip.—Abscess bursting into the Bladder.—George Farrow, æt. 15, admitted July 5, under the care of Mr. Hawkins. He is a weak scrofulous lad, who has been constantly in ill health. About ten weeks before his admission, he had a violent cold, with fever, and an abscess formed over the right tibia, which, when opened, was found to be connected with dead bone; and a few days before his admission a fresh abscess formed in the calf of the leg, with much inflammation, in consequence of the matter from the back of the tibia not being able to escape, two-thirds of the circumference of the bone being dead. He has also complained, for the last three or four weeks, of much pain about the hip of the same side, and has had an issue behind the trochanter, which has been allowed to heal, in consequence of the irritation it excited. On admission, the openings over the tibia were discharging freely, and there was some swelling apparently connected with the femur rather than the hip-joint, which extended some way down the bone.—*R.* Haust. Cinchonæ, \mathfrak{z} iss.; Acid. Nitric. \mathfrak{m} vij. M. bis die sumend. Jusculi Bovini. Oj. quotidie. Dieta ordinaria Cerevisiæ fortioris, Oj. quotidie.

July 31st. Health much improved. Very little thickening about the femur, and the pain is nearly gone. The ulcers on the leg are also healthy, and much contracted in size, and the exposed bone separating.

August 3d. Bowels much disturbed, with sickness.—*R.* Haust. Rhei Comp. h. s. s.; Cont. Haust. Cinch. c. Conf. Aromat. \mathfrak{d} j. vire Acid. Nitric.

11th. Leg very painful; bowels now confined, and painful.—*R.* Hydrag. Submur. gr. iv.; Pulv. Rhei, \mathfrak{d} j. M. h. s. s.

12th. The wound in the leg is sloughing rapidly, with violent pain.—*R.* Decoct. Cinch. \mathfrak{z} iss.; Ammon. Carbon. gr. iv.; Tinct. Opii, \mathfrak{m} xvij. M. 4tis horis.

14th. Wound still sloughing. The bark heavy on the stomach.—*Vini Rubri* \mathfrak{z} iv. quotidie. *R.* Mist. Camphoræ, \mathfrak{z} iss.; Træ. Opii, \mathfrak{m} xv.; Ammon. Carbon. gr. v. M. 4tis horis.

17th. Sloughing stopped. Pain ceased.—*Cont.* Mist. c. Træ. Opii \mathfrak{m} v.

21st. Wound quite clean, the sloughs having separated.—*R.* Infus. Cuspariæ,

℞. *Acid. Nitric. m.v.; Acid. Muriat. m.vj.; Syr. Zingib. ʒss. M. bis die.*—*R. Mist. Camphoræ, ʒiss.; Tinct. Opii m.x.; Sp. Æther. Nitros, ʒss. M. o. n. s.*

28th. Swelling and pain in the right groin, where a gland is felt enlarged and tender.—*Appl. Hirud. vj.*

September 4th. Since the last note, it was evident that the pain in the groin depended on deep abscess, which has been fomented. He has had a good deal of anxiety and fever, much pain and tenderness in the thigh, which is swelled to half its length, though no matter is perceptible to the touch, and he complains of his water scalding him.

5th. Yesterday afternoon the pain ceased, and he felt a sudden desire to make water, and discharged a considerable quantity of pus from the bladder; in the course of three or four hours, probably about two pints having been evacuated; the portion first discharged being dark-coloured, but the rest becoming subsequently white and healthy in appearance.—*Haut. Opiat. h. s. s.; Vini Rubri, ʒviij. quotidie.*

11th. Pain and swelling in the thigh much lessened, and his health is somewhat improved, but there is still a good deal of swelling and much tenderness in the groin and lower part of the abdomen on pressure. The water continues mixed with a great deal of healthy pus, which is discharged rather frequently, but without pain or inconvenience. Once or twice the water has been clear, and he thought the pain was increased by this apparent want of free communication between the abscess and the bladder. No fluid can be felt in the thigh.

20th. Going on well, the abscess continuing to discharge by the bladder.

CASE III.—*Diseased Sacrum—Paraplegic Symptoms.*—Jane Elwood, æt. 26, admitted August 1, 1832, under the care of Mr. Hawkins.

Ten or twelve years ago she fell against a stool and struck the sacrum, to which a blister was applied. About two months afterwards an abscess formed at the side of the sacrum, and some dead bone has come away since. She has been twice pregnant, and each time the abscess burst open again after having been healed. It has now continued open a considerable time, and a small piece of dead bone is felt at the bottom of the sinus. About two months ago, a fresh abscess formed over the posterior part of the right ilium, which is now of large size. Since this has formed she has become almost completely paralytic in the lower extremities, especially in the left, which was always weak, and she has had paralysis of the bladder and rectum, so that both the urine and feces are discharged involuntarily. Her health is much impaired, and she is much emaciated.

August 3d. The abscess was opened, and above a pint of pus evacuated.

5th. *R. Haut. Cinch. ʒiss.; Conf. Aromat. ʒj. M. ter die.*

8th. The bark not borne well; bowels constipated.—*R. Hydrag. Submur. gr. iij.; Pulv. Rhei, gr. xv.; Pulv. Zingib. gr. x. M. h. s. s. Omit. Cinch.*

14th. *R. Infus. Colombæ, ʒiss.; Ammon. Carbon. gr. v.; Confect. Aromat. ʒj. M. bis die. Cerevisiæ fort. ʒj. quotidie.*

22d. Improving; although another smaller abscess is burst in the loins.

September 1st. Both abscesses healed up. She has regained much flesh and strength, and is able to sit up regularly. She can use her legs so as to walk with the assistance of another person, and the bladder and rectum are recovering their power, so that she can retain all but very fluid evacuations, and can hold the water for several hours, with perfect power of expulsion.

20th. Nearly well.

Clinical Observations.—There are several cases of abscess about the pelvis which have been recently under your observation, which I will take as the foundation for a few remarks, as they are by no means unfrequent, and are sometimes obscure and difficult to manage. In one patient, who died a few days since, you have observed an opening in the front of the abdomen discharging feces: would you look for the cause of such an occurrence in the sacrum? There is a second patient, under Mr. Keate's care, who has had an abscess opened in nearly the same situation, at the side of the abdomen, from which a piece of

'emaciated, and with high irritative fever. During the first few days I could not ascertain the exact cause of his sufferings, and during that time he was repeatedly threatened with peritonitis, which required leeches and other measures. Then I discovered fluctuation over the front of the iliac region, and making an incision through the linea semilunaris, some way above Poupart's ligament, I let out a few ounces of pus from between the peritoneum and the transversalis muscle, the finger passing behind the rectus muscle on one side, and into the iliac fossa on the other side, within the abscess. From this time there was not the least sickness, or tenderness, or tension of the abdomen, and he got rapidly well.

Or 2dly, is the abscess already open, but the openings not sufficiently large to allow a free exit to the pus?—Then enlarge these openings, or make another, if possible, still nearer to the seat of the disease. You saw how much Bartholomew was relieved by this incision two or three times, and at the time of her death the abscess had contracted to a mere sinus, and, but for the diseased bone at the bottom, such a sinus may altogether fill up. It may do so even when some disease still remains, as in Elwood's case, whom I do not consider permanently cured, though all the openings are at present closed. I should wish, if I have an opportunity, to make a counter-opening in Farrow's thigh, to prevent the pus entering the bladder, but I do not at present feel sufficiently positive of the situation of the abscess to do so, though I suppose it is in contact with a considerable part of the femur.

3. A third indication is to relieve irritation by opiates, and to support the patient's strength by proper food, by bark or quinine, and other means which I need not enumerate. Even where the abscess depends on diseased bone, and the bone is not accessible, constitutional means alone will sometimes effect a cure. A young woman called at my house a few days ago perfectly well, who was formerly under my care with disease either of the ilium or sacrum, who had two sinuses in the groin like Bartholomew's, one in the course of the psoas muscle, the other leading deep into the pelvis and communicating apparently with the vagina, as pus had escaped in that direction, and who had abscesses also in the lower part of the loins, where I felt diseased bone at some depth.

4. Is the bone carious or ulcerated, but not dead?—If accessible and superficial, stimulating applications, especially of nitric or muriatic acid, certainly assist in restoring a healthy action in the vessels of the part, while you attend to the more important object of altering the state of the constitution, and under their use the ulcer may heal, or some portion may exfoliate, and the surface below become healthy. If not accessible, as for instance, when on the inside of the sacrum, as in Bartholomew's case, something may no doubt be done at the proper period by blisters and counter-irritants, in the same way as you know that caries of the vertebra is often checked by their employment; some benefit might perhaps have been obtained if a caustic issue had been made early in the case of Bartholomew. But unfortunately, in general, the insidious nature of the early symptoms prevents the early recognition of the disease, and counter-irritation has less power in diminishing suppuration than it has in preventing its occurrence; besides which, issues have less power over scrofulous disease of bones than over ulceration of the cartilages of joints. The issue did no good, for instance, for Farrow's disease of the thigh bone, and they do little for caries of the sacrum or innominatum.

5. Is there some dead bone, separated, or in progress of exfoliation?—Much more good can be done, than is usually imagined, in these cases, by the same treatment which you so often see employed in this hospital in necrosis of the long bones. In Mr. Keate's case, a considerable portion of the pubes has spontaneously separated, but this is generally a very tedious and slow process if left entirely to nature, and you can hasten the cure by laying open the dead bone, and extracting it with the forceps or bone nippers. An old soldier, whom I have twice operated on for strangulated hernia, received a musket wound at the siege of Badajoz, the ball passing through the side of the abdomen, through

the ilium, and out again at the back of the thigh; the wound had remained open ever since, discharging so copiously and exciting so much irritation, as frequently to incapacitate him for active exertion. I cut down to the bone, through the glutei muscles, and removed a portion of loose bone, and cut off some soft carious bone with a chisel, leaving an opening which allowed several fingers to pass through it into the iliac fossa. The wound, which had remained open for nineteen years, healed quickly, and has continued sound ever since. I recollect a patient of Mr. Brodie's, from whom a considerable portion of the tuberosity and ramus of the ischium was removed by an incision through the adductor muscles.* Here, again, is the os coccygis of another patient, which I removed by operation, with relief of the same kind.

There are only two other circumstances connected with abscesses about the pelvis which our time will allow me to allude to. The first is the frequent occurrence of phthisis, in conjunction with large abscesses, in this situation, which you have witnessed in Bartholomew's case. The coincidence is very common, and renders it necessary to give a guarded prognosis, even in cases where the local condition seems tolerably favourable. It may be that tubercles in the lungs dispose a person to have abscesses formed in the pelvis, for the same reason that a phthisical state of the lungs so frequently occasions piles and fistula in ano; the alteration, namely of the circulation in the extremities of the vena portæ, owing to the mechanical obstruction in the lungs, or else it arises from the debilitated condition of the patient, which calls into activity any latent disposition to disease in the lungs.

The other circumstance is this,—you see that a portion of the ilium, out of the course of the psoas abscess, was exposed and dead in this poor woman, and this is, in fact, frequently found to be a consequence of large abscesses; so that a person with disease in the spine frequently has caries established in another part of the spine, or in one of the bones of the pelvis, from the mere contact of matter. This serves to show you the propriety of opening even chronic abscesses tolerably early, lest the addition of dead bone in another situation render the case more complicated, and the cure more uncertain.—*London Med. Gaz.* Sept. 29, 1832.

18. *Epilepsy cured by Ligature of Common Carotid Artery.*—J. R. PRESTON, Esq. relates in the Transactions of the Medical and Physical Society of Calcutta, Vol. V. a case of this kind. The subject of it was a man, twenty-five years of age, sanguineous temperament and muscular, who had been subject for five years to very severe epileptic fits, recurring generally about once a fortnight. The fits have generally recurred without any assignable exciting cause, but have also occasionally been induced by intemperance. There was in this case great cerebral congestion; and to prevent this, Mr. P. determined to tie the common carotid, which he performed on the 4th of February. The artery was secured by a single ligature, which came away on the 5th of March. Up to the 13th of April, when the report was made, there had been no return of the epileptic attacks, nor any tendency to them.

SURGERY.

19. *Ligature of the Arteria Innominate.*—This formidable operation, which was first performed by our distinguished countryman Professor MORT, has been recently repeated by W. BRAND, Esq. at the Benevolent Asylum, Sydney, New South Wales. The following are the details of the case as given in the *Lancet* for Oct. 20th last.—John Mullen, aged 31, the subject of this operation, had perceived a small and throbbing tumour immediately above, and about mid-length of, the right collar-bone, two years ago; six months afterwards he became affected with superficial pain across the breast, resembling a sensation of tightness, but without any dyspnoea. There were also considerable pain and

numbness extending along the right arm down to the wrist, and sometimes as far as the extremity of the first phalanx of the fingers, although the sensibility of the whole limb continued equal to that of the left side. He was now placed under surgical treatment, the tumour at this time, according to his statement, throbbing considerably, although not larger than a small pigeon's egg, and, in fact, hardly perceptible when the patient was in a recumbent position. From that period to the present, when he placed himself under my care, the treatment had been merely palliative, having consisted of two bleedings about six months ago—during the first six months, the application of a rag kept wet with cold water night and day,—and an aperient pill every morning, with some other occasional laxative as required. Also, now and then, when there was considerable pain, a grain of opium at bed-time. The increase of the tumour from its observed commencement has been gradual and regular. The general health, which continued good during the earlier periods of the disease, has of late become gradually impaired, and within the last few days seriously so. He has, however, no other perceptible aneurismal affection, nor any disease of the heart. The pulse, which, two or three days before the operation, at which time he first came under my care, had ranged between 100 and 104, but was regular, on the day before, and the day of, the operation, fell to about 60, had become intermitting, and in every other respect was irregular. There was also almost insupportable pain of the left side; the tongue arid, and the dorsum covered with a dense blackish fur, with inability to lie any length of time on his left, in consequence of the above severe pain, and finding equal difficulty of lying on the right side, which had continued during the latter periods of the complaint, and was occasioned by it.

Operation.—The operation, in which I was assisted by Dr. Fattorini, my medical colleague at this institution, was performed this day in the presence of Drs. Smith, Ross, Rutherford, and Jacob.

The patient being placed in a horizontal position on a table with the head supported by pillows, an incision was made through the integuments, extending upwards about two inches from the atlantal edge of the sternum, in the direction of the fibres of the subjacent sterno-hyoid and thyroid muscles, and about one inch and a half downwards below the atlantal margin of that bone, for the purpose of obtaining sufficient room for the subsequent steps of the operation. The sternal insertion of the mastoid muscle was now divided, and the dissection further prosecuted by the careful separation of the fibres of the sterno-thyroid and hyoid muscles, in their longitudinal direction, partly with the edge, and partly with the handle of the scalpel. The forefinger was now cautiously insinuated through the cellular substance and down to the arteria innominata, and that vessel having been separated from the adjacent nerves, the needle was slowly and deliberately introduced. The ligature, consisting of two threads, was now tied with much care, and with sufficient firmness, it was conceived, to cause the division of the inner coat of the vessel, and the wound was covered with light dressings. Immediately after the operation, haustus c. liq. anarph. acet. m. xxv. et aqua.

Progress of the Case.—9 P. M. No pain except that of the left side. V. S. ad \bar{x} xviii.

March 27th. Quarter to 3 A. M. Free from all pain; composed; short sleeps; pulse 132.

5 o'clock. Two cathartic pills.

6½ o'clock. Pulse 144.

2 P. M. Pulse 138. V. S. ad \bar{x} x.

7½ o'clock. Pulse 138; patient lying on the right side; inclined to sleep; no motion; repet. pilulæ.

28th. 5½ A. M. Calm night; slept at intervals as hitherto; in good spirits; tongue moist, less coated and dark; no motion; perspires freely, and has done so almost ever since the operation. Right upper extremity perspiring freely, warm, of about the same temperature as the left; no numbness, except in the

- fingers; tumour subsiding rapidly; no disturbance of the sensorium, nor at any time since the operation. Turns, (though desired to do so with much caution,) and lies on either side with perfect ease; no motion; pulse 126. V. S. ad xxvii .; repeat pills; two hours afterwards a dose of salts.

3½ o'clock. Pulse 132, full; tongue moist, less coated and dark; one scanty motion. V. S. ad xxj .; repeat pills and magnes. sulph.; should it become necessary in two hours afterwards, enema.

7 P. M. Pulse 138. Two motions. Haust. anodynus.

29th 4½ A. M. Two motions; free perspiration; no pain; sleep at intervals; pulse 120, regular, rather full and firm; diet tea, with milk; wound dressed for the first time; healthy.

7½ o'clock. Pulse 132, full, hard; languor; drowsiness. V. S. ad xxij .

9½ o'clock. Much relief; pulse 120, regular, moderately full. Lemonade; an egg; in other respects, diet as hitherto. Pilulæ cathartica.

1 to 1 P. M. Head quite relieved; pulse 126, regular, and neither hard nor full.

6½ o'clock. Pulse 126; calmness; good spirits as in general; no motion. Repet. pilulæ. Magnitude of the tumour reduced one-third; no perceptible pulsation in any of the branches, either of the right carotid artery or right subclavian. Perfect use of both arms.

March 30th, 2½ A. M. A good night; pulse 114, firm, full; no motion. V. S. ad xxijss . Wound dressed (second time.) Repeat pills, one egg.

7 o'clock. Pulse 108, regular, full, firm; as usual good spirits; no motion. Pilulæ cathartica.

2½ P. M. No change.

9½ o'clock. Pulse 108, full and firm; slight pain at the scrobiculus cordis; one copious motion; wound dressed; *pain gone*; breakfast, one egg, one biscuit, one cup of coffee with milk; dinner, half a biscuit, tea with milk; favourite beverage, lemonade. V. S. ad xxij .

31st, 6½ o'clock. A good night; pulse 96, full, firm; tongue moist, less and less coated; two scanty blackish motions; wound dressed, healthy. V. S. ad xxij . Transverse admeasurement of the tumour in various directions from three inches to three and a quarter.

10½ P. M. Pulse 108, full, firm; patient stronger, and feels better than at any time since the operation; no pain of any kind, but at times much restlessness. V. S. ad xxv . Wound dressed.

April 1st. An excellent night; pulse 96, full, soft, regular; wound healthy, dressed. V. S. ad xxvj . Permitted to rise at his own earnest entreaty for half an hour.

8½ o'clock. Pulse 108, full, firm; pain of the left side, in the same spot in which it had been felt just previously to the operation; one motion. V. S. ad xxij . empl. lytta later. Omit egg. Diet to consist solely of gruel, barley-water, rice-water, and these always tepid.

2d, 7½ A. M. A good night, though with little sleep; pain utterly gone; no motion; pulse 120, soft, regular, and moderately full; blister dressed; blood not in the least buffed. Aperient pills to be repeated, if requisite, in three hours.

6½ P. M. Pulse 102, full, but soft; two motions. V. S. ad xxij .

3d, 7½ A. M. An excellent night; composure, calmness; pulse 94, moderately full. Perstet.

9½ P. M. Pulse 102, soft, moderately full; one motion; return of slight degree of numbness in the right arm and hand; bread and tea three times a day; rice-water.

4th (ninth day.) A good night; pulse 96, during sleep; after dressing the wound 90; soft, full. Perstet.

8½ P. M. Pulse from 90 to 96; one motion; tongue a little furred.

5th, (tenth day.) A good night; pulse 90 to 96, full, soft, regular; wound fast filling; discharge creamy, less and less copious; tongue somewhat more, furred than yesterday, or the last two days. Bread, tea, lemonade.

10 P. M. Pulse 96, rather more full and firm than for the last two days. Some morbid heat; slight head-ache; tongue coated; two motions; keen appetite. Average transverse admeasurement of tumour from three to four inches. V. S. ad \tilde{v} . Bread, tea, rice-water, lemonade.

6th, (eleventh day.) A good night; pulse 88 to 90, soft, moderately full; tongue less coated; no motion; wound healthy, fills fast. Pilulæ cathartice.

9½ P. M. Two motions; pulse 88 to 90, soft; tongue becoming more clean.

7th, (twelfth day.) Excellent night; pulse 84, clean, regular, moderately firm; wound healing fast; tongue more clean; appetite good; one motion. Peristet.

8th, (thirteenth day.) Pulse 84; appetite good; one motion; wound healing.

9th, (fourteenth day.) Pulse 108, (but only half an hour, as it should seem, after his dinner.) V. S. ad \tilde{v} ij.

10th, (fifteenth day.) A moderately good night; but, this morning, considerable soreness of the throat, (i. e. of tonsils and pharynx,) similar, he states, to an attack he had had a short time before he came under my care, and for which at that time he was wearing a piece of flannel; some dysphagia; pulse 108, somewhat full, hard; wound nearly closed; discharge scanty, but slightly sanious; some febrile heat; one good motion. V. S. ad \tilde{v} xiv. Immediate relief.

9½ P. M. Pulse 108; slight head-ache; cynanche stationary.

11th. Pulse 102, regular, and soft; cynanche stationary; no motion; wound healthy; discharge, however, still slightly sanious. Pilulæ cathartice.

10 P. M. Pulse 102; surface dry, hot; tongue coated; throat tender, painful; one motion; no food, except a little tea, either to-day or yesterday.—Pulv. Diaphoret. c. pulv. ant. and potass nitrat. Empl. lyttæ extern: faucib., appd.

April 12th, (seventeenth day.) 4½ A. M. One motion; hæmorrhage from the wound to the apparent extent of about four or five ounces, but which has now ceased; pulse 96, regular, but somewhat weak; febrile symptoms relieved: blister dressed; throat better; wound nearly closed. Repet. pulv.—Habeat etiam omnib. hor. tinct. digit. gtt. x. Fruit, by his own desire; lemonade.

10½ A. M. Pulse 108, somewhat contracted, hard. V. S. ad \tilde{v} vi. immediately after bleeding, soft, full, and regular. He has eaten one roasted apple, and taken some tea and bread.

7½ P. M. Second bleeding from wound of only a few ounces, and which had ceased, as in the former instance, before my arrival; in other respects a good day. Obscure pulsations, or faint, irregular, thrilling motions perceptible in the tumour, and which appears to be, and is found to be, increased in size, viz. from the average transverse measurement of 2 1-8 inches to 3 1-4 inches since morning. Director passed to the depth of about three-fourths of an inch by the side of the ligature, but no appearance of blood. V. S. ad \tilde{v} xiv. Surface of the wound sponged with warm water, and left covered only with his clothes. Directions, that it should immediately on the return of hæmorrhage be exposed to the air while I was being sent for. Pulse 108, V. S. ad \tilde{v} xij.; subsequently to bleeding, the same in number, but more soft and weak, yielding to pressure, though still regular. One motion during the day; except tea, no sustenance since last visit; no pain; good spirits; throat nearly well; flannel to throat. Haust. anodynus.

April 13th, (eighteenth day.) Two o'clock, slight bleeding, but which immediately ceased, and I was therefore not sent for. Hæmorrhage a second time at 6, to the amount apparently of ten or twelve ounces; in other respects an excellent night, effect, perhaps, of the anodyne. He is at present disposed to sleep; the hæmorrhage has ceased; pulse, however, weak, contracted, intermitting, and in other respects irregular; extremities yet warm, except the right arm; complains of no pain or uneasiness; says he is only weak; soon afterwards, however, desires that the right hand might be cooled, though it is as cold as marble, and, on being questioned, says no other part feels too hot. Drank by his own desire a little lemonade. Sensorium perfectly undisturbed, and so remained till within a minute or two of his decease, at 7 o'clock.

Dissection.—Present, Drs. Smith, Rutherford, Ross, Johnson, and some other medical friends.

The thorax having been carefully and extensively opened, the heart, together with the arch of the aorta, arteria innominata, right carotid artery, and subclavian, including the aneurismal tumour, were removed; and in the course of, and subsequent to, which dissection, the following circumstances were observed:—

1st. That the pleura and contiguous cellular substance *had been* in no way injured by the operation.

2d. That the wound had been almost entirely closed from its fundus up to the surface, so that no more than about a tea-spoonful of matter was found in its cavity.

3d. That the ligature which encircled the artery close to its grand division into the right subclavian and carotid, had almost completed the division of the artery.

4th. That the carotid artery had become closed throughout its entire extent by solid coagula, and that about two-thirds of the arteria innominata itself had become closed by a solid plug of coagulum adhering to its walls, while, on the contrary, the subclavian, from its commencement up to the aneurismal tumour itself, still remained pervious, and whence alone, no doubt, the fatal hæmorrhage had proceeded.

This portion of the subclavian also seemed, on careful examination, to be slightly enlarged, and its coats somewhat thickened. The axillary artery was pervious, and contained no coagula.

The remainder of the thoracic and the whole of the abdominal viscera, were in a sound state.

20. *Nature and Treatment of Hæmorrhoidal Tumours.*—The following remarks on this subject by Baron DUPUYTREN, are taken from the clinical lectures delivered at the Hôtel-Dieu of Paris, by this eminent surgeon, during the session of 1831-2. We are indebted for them to the *London Medical and Surgical Journal*.

“The lower extremity of the rectum is, in many persons, the seat of bleeding tumours, to which the name of hæmorrhoids is given. These tumours may exist for life without occasioning any considerable annoyance, but they are often the cause of serious injury, which endangers the life of the patient, and which infallibly terminates in death, if they be not combated. The celebrated Copernicus and Arius sunk beneath hæmorrhage, in consequence of rupture of the hæmorrhoids. Bordeau and Benjamin Bell mention cases of issue equally fatal. This fatal termination has been noticed by the ancients, and they have, says M. Dupuytren, proposed different treatments of this affection, and amongst others, that of ligatures. Hippocrates, in his work *De Ratione Victoris in Acutis*, recommends binding the hæmorrhoids with a thick, strong, worsted thread. You should tie, added he, all the tumours, with the exception of one; you should not cut them, but you should hasten their fall by appropriate topical applications. Paul of Egina has given the same directions. Celsus thought that the tied tumours ought to be opened with the nail, or the scalpel. I mention these different opinions, said the Professor, to prove to you that the ancients knew very well the danger of hæmorrhoids. Before we examine the remedies employed against these tumours, it will not be irrelevant to describe their nature, to point out their anatomical structure, and the cases in which it would be proper to apply the treatment of which I propose speaking in this lecture. Relating to their nature, many opinions have been promulgated. Some, with Montegre, think that the sanguine discharge flows neither from the arteries nor veins, but from the capillary vessels. Laennec and Abernethy considered them to be the result of the formation of new vessels. According to Duncan, Le Dran, Cullen, MM. Recamier and De La Roque, they are formed by the cysts in which the arterial blood is poured. Stahl, Alberti, Vesalius, Morgagni, J.

L. Petit, Pinel, Boerhaave, regarded them as dilated veins, or real varices, and such also is our opinion. If we examine, says M. Dupuytren, the composition of hæmorrhoidal excrescences, we find that they are divided into external and internal. Internal tumours, covered with a mucus of a violet colour, form in the rectum a sort of partition, they present between them furrows which facilitate their being detached, and which often disappear by an inflammation. The tissue of this membrane exhibits tumefied veins, resembling the heads of pins, which, when an incision is made in them, discharge venous blood, and have a spongy appearance. When the mucus is removed, there appear false organized membranes, or cellular tunic, the muscular membrane constituting the external tissue; voluminous arterial branches are often seen on them. External hæmorrhoids, which form a sort of crown around the anus, are composed:—1. Externally of tumour, the greater part by the rectum, and a small portion of the skin. 2. By the false membranes which often exist on the internal tumours, or in the nervous tissue which seems to extend itself to the *fascia superficialis*. 3. By the dilated veins which constitute the hæmorrhoids. 4. By the external sphincter, which encircles the pedicle, and constantly sends fibres to them. 5. By the nervous filaments which extend on the surface; and lastly, by fat, which is sometimes placed between the skin and these tumours. These dispositions being known, let us see, continues the Professor, in what cases the disorder ought to be left to itself, or when it should be combated by surgical means. It is evident that it would be contrary to all rules to attempt removing hæmorrhoidal affections in cases where the patient is weakened by organic disease of the intestines, of the liver, and especially of the lungs. It is a general observation, that in cases which exhibit pathognomonic symptoms of phthisis, the fatal effects of the disease have been checked for some time by the appearance of hæmorrhoids, and that, in consequence of their untimely suppression, the disorder returned with energy. In the last months of pregnancy, or from the efforts of labour, women often have hæmorrhoidal tumours; they result, in these cases, from an evident cause, and disappear with it. When these hæmorrhoids are not disorganized in their tissue, when there is no hæmorrhage nor copious discharge of purulent serosity which would reduce the patient to a state of profound and characteristic anemia, surgical means are not advisable in remedying these accidents, or rather the inconvenience which they occasion; antiphlogistics will suffice for their removal. But when the life of the patient is endangered remotely or immediately—when the annoyance is so considerable as to require prompt assistance, and the hæmorrhoids are disorganized, antiphlogistics will not be sufficient; excision is the only remedy, says M. Dupuytren, which will succeed. Disorganized hæmorrhoids, and those that require an operation, shall be considered in the following lecture.

“These two kinds of hæmorrhoids, internal and external, may or may not be met with simultaneously; they form a reunion of tubercles which encircle the anus, some externally and some internally; and this species has been named by M. Dupuytren external and internal hæmorrhoids. External hæmorrhoids are formed by a circle of round, smooth tubercles, of a brownish colour on the outside, where they are covered by the skin, and of a bright red inside where the mucous membrane forms their covering, rarely ulcerated on their external surface, they are on the contrary, very frequently on their internal, and from thence arise hæmorrhages more or less abundant, purulent, or sero-purulent discharges, which tend to debilitate the patient. Internal hæmorrhoids, situated above the anus, and often strangulated by the sphincter, in consequence of their engorgement, or by the prolapsion of the internal membrane of the rectum, (a frequent complication in hæmorrhoidal tumours,) which give rise to the same accidents, and are known by the bright red colour of the tubercles. These two species of hæmorrhoids are sometimes present in the same patient.

“The individuals attacked by this malady, walk with difficulty in the street; stopped every moment by the intensity of the pain, they may be seen with their hands behind their back, or sitting down on the next resting place, in

order to push in their hæmorrhoids; others, for the same purpose, rub themselves against walls, but these means only procure them a momentary relief, and a return of pain quickly follows the next protrusion of the hæmorrhoids; more or less exhausted by the abundance and frequency of the hæmorrhages or sero-purulent discharges, the patients become emaciated, their skin becomes pale, discoloured, wan, like wax; they have the aspect of persons exhausted by other hæmorrhages or by abundant suppurations; they very often fall into a state of sadness and deep melancholy; their intellectual faculties become weakened, and they are often found to attempt their lives. Meanwhile the local disorganization progresses, a scirrhus affection of the anus and of the inferior part of the rectum show themselves, and death will be the termination of their progress, or the result of the abundant discharges, if they be not successfully opposed.

"It is then in those cases, says M. Dupuytren, that we must have recourse to operative proceedings; but to which treatment shall we give the preference? To obtain the radical cure of hæmorrhoids, we employ in turn compression, ligature, cauterization, recision, and excision. Let us discuss successively the use of these different means. We may waste the hæmorrhoids by compression, but the situation is not favourable for this, and thus it is given up. The ligature, as we have seen, has been a very ancient practice; its inconveniences are considerable, since it exposes the patient to inflammation, insupportable pain, and sometimes to death, as the celebrated J. L. Petit was reported an example. Cauterization has been frequently practised. It is of considerable utility when united to excision; it causes extreme pain, and may expose to great danger if it be applied to voluminous and extensive tumours, which would require the prolonged action of the actual cautery. Recision has been praised by many practitioners; it consists of shaving the hæmorrhoidal tumours with a pair of scissors; but it would seem that a practice that induces hæmorrhage, which lets the tumour remain, and provokes inflammation, cannot justify the preference which has been given to it. There remains then excision, said the Professor, which we employ with the greatest success.

"Let us now consider how it ought to be practised; we will speak afterwards of its inconveniences, its dangers, and the means of remedying them. First, the diagnosis being established, and the operation decided on, the patient should lie on the edge of the bed on his side, or on the knees and elbows, the two legs extended; or it would be better to have one bent strongly on the thigh, and the other extended. If the tumour is internal, the patient is recommended to make violent efforts, as if going to stool, in this manner he will protrude it; and it should be seized with a large kind of forceps, whilst an assistant raises or separates the thighs, and with a pair of long scissors, the model of which has been given by us, the tubercle will soon be excised. The manœuvre offers very little difficulty.

"We have for a guide, adds M. Dupuytren, that we should only excise a portion of the protruding tumour; for if it were taken completely away, the patient would be exposed to severe hæmorrhage, and to consecutive contraction of the anus. By this treatment there remains apparently a considerable mass at the verge of the anus, which might seem as if there had not been a sufficient quantity of the hæmorrhoids removed; but when cicatrization takes place, the opening will return to its natural state.

"This is also the case in excision of the tonsils. The excision of internal hæmorrhoidal tumours is more difficult. To induce an external protrusion in order to be able to seize it, and remove it completely, the patient should be placed sitting on a warm hip bath, desired to make expulsive efforts. As soon as it is protruded, he must lie down immediately on the bed, in the position before recommended, and the operator, quickly seizing it, should not give it time to reënter, but excise it immediately.

"Before the operation, M. Dupuytren is accustomed to administer a gentle aperient, and an enema. We will see afterwards what are the motives of these

precautions. The excision is not without difficulty and danger, but the difficulties are easily surmounted, and the dangers can happily be prevented by the precautions which are now used.

"The entire danger is the hæmorrhage that may follow; where the tumour is external the blood spouts out; the hæmorrhage is immediately perceived; and is easily stopped by cauterization. It is to actual cautery that we must have recourse when the tumour is internal; but in these cases the application of the cautery is more difficult, and the hæmorrhage may be easily mistaken. What reveals it to the eye of an attentive and enlightened surgeon, is a sensation of heat which the patient experiences in the abdomen, and seems to advance by degrees in proportion as the blood accumulates in the intestines, or he feels colic pains, and always a peculiar sort of pain, a sort of tenesmus. The abdomen is sore to the touch, especially towards the groin and the left iliac fossa. Respiration is difficult; the pulse, at first intermittent and irregular, becomes small and frequent; the skin is discoloured; the face is covered with cold perspiration. The restlessness which the patient at first complains of, is quickly succeeded by despair; there is an inclination to vomit or vomiting, with convulsive contractions of the extremities, vertigo, &c.

"This accident once known, we must hasten to evacuate the blood contained in the intestines, by directing the patient to make efforts as if going to stool, and by administering a cold enema. These strainings always bring out the wound; and by means of a cautery heated to a white heat, which M. Dupuytren has expressly constructed, and which he calls *cautère en haricot*, or another which he calls *en roseau*. The place where the blood flows from, should be cauterized, this treatment is always sufficient to stop the hæmorrhage; and I have never seen, says the Professor, that any dangerous effects followed. Whenever I perform these operations, I take care to have an intelligent assistant with the patient, who, on the first symptoms of hæmorrhage, whether internal or external, applies the cautery, and prevents any danger."

21. *Large Tumour of the Jaw removed by an Operation.*—ROBERT DAVINSON, Esq. has communicated to the *London Medical Gazette* the following case. Abel, a boy of seven years of age, from the Isle of Rhond, came into the hospital at Little Bacolet, on the 26th November, 1829, with a hard swelling in the left side of the lower jaw, about the size of a hen's egg. Mercurial friction was used, but without any benefit, when he left the hospital.

On the 15th June, 1830, he again returned to the hospital, with the tumour occupying nearly one-half of the lower jaw. Mercurial friction, with small doses of calomel, was again had recourse to, but still without any good effect.

June 22d, 1831.—The jaw is now immensely enlarged, with an opening behind the canine tooth, from which there is occasionally slight hæmorrhage.

He had hæmorrhage again July 1st, 8th, and also on the 27th and 30th of December: on the 2d of January the hæmorrhage became great, and the tumour rapidly increased; when, after a consultation on the case, an operation was determined on.

On the 17th of January the operation was performed in the following manner:—The boy being placed on a chair, with his head bent a little backwards, the operator, after having extracted the second bicuspidal tooth, made an incision through the lip, half way between the commissure and the angle of the mouth, continuing it downwards over the base of the jaw, and then connecting it with a second, from the lobe of the ear along the base of the tumour. The flap was dissected up, exposing the front of the tumour, and the masseter muscle and adipose substance being removed, the disease was found to occupy both processes of the jaw. The temporal muscle was then detached and the capsule opened anteriorly. A chain saw, armed with a large needle, was passed behind the jaw opposite the tooth already extracted, and the bone sawed through, the assistant drawing the tumour obliquely outwards. An incision was made close upon the bone, along the inside of the diseased portion of the jaw, separating

it from its muscular detachments; the buccinator being cut through at the same time, the tumour was drawn outwards and downwards, so as to allow the capsule of the joint to be divided by a probe-pointed bistoury. The whole was thus removed.

During the operation only two arteries were tied, namely, the lingual and facial, and the hæmorrhage was trifling. The parotid gland had been absorbed, but the masseter muscle was unusually strong and large. The tumour measured seventeen inches and a half in its longest circumference, and twelve inches and a half transversely: it weighed two pounds and a half.

The boy did well, though of course considerable deformity remained, from the extent of the cicatrix.

22. *On Enlargement of the Prostate.* By J. A. HINGSTON.—When an old man, labouring under the misery of an enlarged prostate, says, that his water dribbles away day and night, there is reason for suspecting that his bladder is full, and already distended with one or two pints of urine, and that it is but the overflowing of the bladder that dribbles away. If a catheter be passed, it will be found to be so. But even the catheter does not empty the bladder entirely; for a certain residue of urine tarries behind in the *bás-fond* of the bladder; in that part of this viscus which is behind the prostate gland, and below the beak of the instrument.

The most distressing accompaniment of an enlarged prostate is the prolapsus ani, which happens in the latter stages of this complaint. The rectum becomes everted at the anus, and presents itself red and excessively tender, with a copious drainage of mucus, from the exposed surface as well as from the interior of the gut, which seems to sympathize with the neighbouring disease of the bladder. The prolapsus ani, and also piles and herniæ of the groins and thighs, result from the powerful muscular efforts which the patient makes to expel his urine. In the act of micturition, he straddles his legs, bends his body forwards, and grows red in the face; the anus descends, and the feces sometimes escape at the same moment into the old man's clothes, while the urine drips out along the urethra, drop by drop, as hot as melted lead. At this time, blood flows into the penis, and it passes into a state of partial priapism. The patient is again and again called upon to make water, and the same efforts give rise to the same disgusting accidents, so that life becomes a loathsome burden to himself, and an offence to all who are concerned about him. The mucus from the rectum dries, and claps the exposed surface: and, at night, the patient is disturbed by an involuntary discharge of the seminal or prostatic fluids, or perhaps by the venereal orgasm without emission,—which I have known to happen in an old man of eighty years of age. There is a constant pain of the glans penis, and along the urethra an inch from the orifice. After a time, however, the penis, the nates, and the thighs, become benumbed, and the patient only suffers from the sense of a large ball lodged in the rectum, and this ball he is always straining to expel.

In these cases, the bowels become very obstinate, and are regulated only with the greatest difficulty: soda, rhubarb, and hyoscyamus, in combination, are the most effectual. Much of the local pain and misery may be relieved by an opiate suppository at night; but, then, opium checks the bowels, and an aperient aggravates all the evils. Dr. Heberden extols a clyster, containing tincture of opium, (see Comment. c. 75, Prost. Schirr.) and Sir A. Cooper, in his lectures, used to recommend small doses of the oxymuriate of mercury.

Beyond this, I know of no medical treatment: I have tried all things, and found them of no avail. If the patient will persevere in the use of a certain diet, and live abstemiously upon light, bland nourishment, such as milk, bread, mutton, eggs, spring water, his sufferings will be greatly mitigated; for it is the object of the patient to supply his stomach lightly, and to give his digestive organs as little work as possible to do.

Oedema of the legs, thighs, and scrotum, and an obstinate retention of urine,
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requiring the daily use of the catheter, forerun death: the patient becomes emaciated, suffers continual pain, and droops. The pain is not in proportion to the size of the prostate, but to the difficulty of passing the urine; and this difficulty is owing to the increased size of the third lobe, which flaps over, and perfectly stops up the origin of the urethra. Last August, I opened the body of an old man, and removed the bladder from the pelvis full of water, and not a drop escaped while I held up the distended bladder in both my hands, with the ~~on~~ ^{mouth} of the urethra, cut off short at the prostate, hanging downwards: no urine escaped till I had slit up the bladder. The muscular fibres are enlarged, and become, on the inner surface, as visible and distinct as the *carneæ columnæ* of the heart: this arises from the increased exertion necessary to make the bladder contract on its contents. (See Cases of Discased Bladder, &c. by W. Wadd, Surgeon, 1815, pl. iv.) A bundle of fibres diverging upwards from behind the prostate gland externally, is enlarged, and I have seen these fibres red and fleshy as high up as the fundus. The size of the prostate gland enlarged by disease varies; and I have found it, in one case, as large as a St. Michael orange, and, in a second, not bigger than a large walnut. It is always firm, white, and cartilaginous. Small calculi are sometimes found in the gland, and I once discovered them within the cells of the *vesiculæ seminales*. Just at the origin of the urethra lies the third lobe of the prostate, which in disease starts up like a crest, and at every effort at making water, flaps down on the opening of the urethra, and shuts it up. In one case which I attended, the third lobe was so situated that I had to pierce it with the catheter every time I introduced that instrument: and a long catheter was necessary. At first, I lifted up this lobe of the prostate on the beak of the instrument, and then, of course, no urine flowed; and it was only by depressing the handle very much, and pressing it onwards, that I passed through the obstruction, and cleared the beak of the instrument, so as to let the urine flow out: on dissection, after death, I found this third lobe torn through. In another case, the patient had suffered severely for three years, and then died: the prostate was not large laterally, but the third lobe was prominent, like a pyramid. In an enlarged prostate, small whitish eminences will be found, looking at first like tubercles of the lungs: when cut into, they are white and brawny.

23. *Varicose Tumour developed in the Venous Branch which connects the two Jugulars.*—A man, aged twenty-three years, was admitted into La Charité with a tumour of the size of a pigeon's egg, at the upper part of the clavicle. This tumour was without pulsation; it resembled an engorged ganglion or rather a cyst in the subcutaneous cellular tissue; it was hard, renitent, and was not diminished by pressure. This tumour had been first noticed by the patient about two years before; it was then very small. Two months since, after severe work, it had attained its present size. It was not painful, but it disquieted the patient and he wished to be relieved of it.

After dieting the patient for a few days, M. Roux made a crucial incision over the tumour, dissected up the skin and opened the tumour to discover its nature. M. R. was much surprised on seeing clots of black blood discharged, and on recognising the varicose nature of the tumour, formed by the dilatation of the parietes of the vein. Moderate pressure was made upon the internal jugular, to prevent a too great loss of blood. Some thoracic branches were tied, as well as the venous branch which was the seat of the disease. The results of the operation were most fortunate; the patient did not suffer the least accident. The wound cicatrized, and the patient was cured in fifteen days.

Varicose tumours of the veins of the upper portion of the body are very rare; M. Roux never before met with them. He has however seen varicose tumours of the superficial veins of the forearm in a case under the care of Sir Astley Cooper; and he has met with a disease nearly analogous in the vicinity of the internal jugular vein; the parietes of this vein being perforated with small holes, and the tumour formed by the effusion of the blood into the neighbouring cel-

lular tissue. These varicose tumours are very analogous to the aneurism met with by Pött in the neighbourhood of the popliteal artery, and formed by the blood which escaped from holes in the artery. Morgagni and Portal speak of varicose dilatation of the superior veins which have pulsation. The first of these authors saw the vena azygos of the size of the vena cava, and which caused the death of the patient by its rupture into the right side of the chest. The second named author also relates a case in which the subclavian vein burst in the thorax. Finally, Cline speaks of a varicose tumour of the internal jugular which burst and occasioned a fatal hæmorrhage.—*Journal Universel et Hebdom.*, Tom. VII. p. 42.

24. *Case of Aneurism of the Posterior Iliac Artery.*—Dr. RUXER describes in the *Revue Médicale*, for September last, a case of this, (which proved fatal, no attempt having been made to tie the artery,) in which the aneurismatic sac was of an enormous size, measuring $21\frac{1}{2}$ inches in circumference.

25. *Torsion of Arteries.*—Dr. FRICKE, of Hamburg, states that soon after M. Amussat published an account of his trials with torsion of the arteries, he resorted to this means of arresting hæmorrhage, and so far he has had no reason to regret its employment. In the great Hospital of Hamburg, of which he is surgeon-in-chief, there are annually performed from three hundred and fifty to four hundred operations. During three years he has employed torsion not only in his hospital, but also in private practice, and has applied it to nearly all the arteries, even to the crural, without dangerous consequences, as hæmorrhage, suppurations, &c.

A great number of the physicians of Hamburg, he says, now employ it.

The operation, as performed by Dr. Fricke, is simpler, and not so violent as that of M. Amussat. Dr. F. seizes the extremity of the divided artery, and twists it, until he satisfies himself, by the tearing of a small portion of the membrane, that the torsion has succeeded. Dr. F. says that he has performed it in this way upwards of a thousand times.—*Gaz. Méd. Tom. III. p. 542.*

26. *Hydrocele Spontaneously Cured in a Few Hours.*—Dr. KRIMER relates in the *Medicinisches Conversations-Blatt*, for 1831, No. XIV, the case of a labourer, fifty-two years of age, who had been affected with hydrocele for several years. A puncture was made and a pint of serous fluid discharged. The testicles were found unaffected. In three months, however, the fluid began again to accumulate in the tunica vaginalis. Nine months afterwards the patient applied to Dr. Krimer, when the tumour was of the size of a child's head. Dr. K. proposed to the patient to cure it radically by excision of the tunica vaginalis, to which the patient consented. On the day fixed for the operation, Dr. K. was surprised to find no trace of the disease. The patient informed him that the preceding evening, having raised with exertion a weight of nearly two hundred pounds, he had experienced in the region of the inguinal ring a crackling and violent pain as if his abdomen had been torn. He then lay down, urinated copiously, his pains were solaced, and he slept. It was not until he awoke that he found the tumour had disappeared, when he discovered an ecchymosis extending over the left half of his scrotum. The spermatic cord and the epididymis were varicose, the inguinal ring closed, and there remained no part of the liquid and no pain. The ecchymosis was cured, and the varicose condition of the spermatic cord diminished by fomentations with vinegar and water, and afterwards with wine and alum.

27. *Caries and Detachment of the Body of the Third Cervical Vertebra.* By Dr. MERCOGLIANO.—M. J. was affected with inveterate syphilis. At different periods he had been submitted to antisyphilitic treatment, but in spite of repeated use of mercurial ointment and of sarsaparilla, the disease reappeared in the form of ulceration of the throat. After having destroyed almost the whole of

the velum palati and the uvula, it attacked the posterior fauces, destroying the whole of the muscular substance covering the bodies of the vertebræ of the neck. The disease was worse over the body of the third cervical vertebræ, which it exposed. A slow fever came on, and the patient was reduced to a deplorable condition. Dr. M. being consulted, he ordered corrosive sublimate, milk, and decoction of bark and sarsaparilla. The ulcerated spot was moistened with conserve of roses and tincture of myrrh. The patient improved in health, the fever disappeared, and after six months treatment, the body of the third vertebræ, having projected so far forwards as to impede deglutition, Dr. M. seized it with a pair of forceps, and drew it out of the mouth, not, he observes, without difficulty. The patient suffered no injury as respects the spinal marrow; the neck did not undergo any deviation in shape, although the body of the vertebra, with the exception of the posterior lamina, which forms part of the vertebral canal, was entirely detached with a portion of the transverse apophyses.—*Gaz. Méd. Sept. 15, 1832, from the Osservatore Medico-Giornale di Medicina, Napoli.*

28. *Umbilical Hæmorrhage.*—The July No. of our respected Transatlantic cotemporary, the *Edinburgh Medical and Surgical Journal*, contains some interesting remarks on umbilical hæmorrhage, by THOMAS RADFORD, Esq. The bleedings, he observes, which occur after birth from the funis umbilicalis, and from the umbilicus after the separation of the cord, are usually confounded as to the source whence they arise, and the causes by which they are produced.

I. *Bleeding from the funis* may occur immediately after the application of the ligature, or several hours after birth, and this hæmorrhage may proceed either from the arteries or from the vein, and generally depends upon an ineffectual application of the ligature, although bleeding would not universally happen if the funis were left untied. On the other hand, the tight application of the ligature will not always prevent this occurrence. There are several causes which give rise to this failure. We occasionally meet with the funis unusually thick, in consequence of the very large quantity of *glutinous matter* contained within its coverings. In such cases, if we adopt the usual practice of tying the funis, by placing one ligature at a certain distance from the abdomen, and the other two inches distant, on the placental side, bleeding will most probably occur. If the extremity of a funis, tied as above stated, be examined, the orifices of the vessels will be seen patulous, thus proving an ineffectual compression of their sides. The practice recommended in such cases by Mr. Radford, is to “let the ligature be first tightly placed upon the placental portion of the cord, and then let another ligature be loosely placed upon that portion of the funis which is to remain connected with the fœtus, and which must be tightened after the division; and in order to give additional security, let a second ligature be placed upon this part. The advantage of this method arises from the more decided influence which the ligature produces upon the calibre of the vessels, in consequence of the more serous portion of the gelatinous fluid escaping from the divided extremity.

“The umbilical cord may be diseased, being either *ossified* or of a *cartilaginous firmness*; and it will be obvious that such a condition exposes the infant to the dangers of hæmorrhage. If ossification has taken place, the cord will break when the ligature is tightened, in consequence of the extreme fragility of its texture. The application of a broad ligature, (such as a piece of tape,) in this case, promises a greater chance of security against bleeding than one of the usual thickness, as a thin ligature would inevitably divide the sides of the vessel. A *varicose* state of the umbilical vein is occasionally met with. In some cases the disease occupies only a small portion of the vessel, while in others, its whole canal is morbidly dilated. In this state of the cord, bleeding will most assuredly occur, either from its extremity, immediately after its division, or, according to Dr. Dewees, in the course of two or three days, in consequence of ulceration taking place in the side of the vessel, from the ligature being tied

so as to include the diseased portion, that is, nearer to the placenta than the dilated portion of the vein. To prevent this accident, then, the ligature must never be placed upon the varicose part, but must invariably lie nearer to the abdomen of the child than the situation of the disease."

II. *Bleeding from the navel.*—The complete separation of the navel string is not always accomplished at the same period of time, but generally from the fourth to the seventh day; at which period the mouths of the umbilical vessels and vein are usually closed. It occasionally happens that this closure is not effected by the powers of nature; and hence when the funis comes away, or in a short space of time after, an hæmorrhage commences from the navel, which generally destroys the infant. This occurrence is generally confounded by the nurse and friends with hæmorrhage arising from displacement of the ligature, and is too often ascribed to the neglect and imperfect tying of the funis at the time of birth. Thus, the character of the accoucheur suffers undeservedly. The result of umbilical bleeding is very generally fatal. Mr. R. has met with but one case in which it was not so. The opinion usually entertained as to the comparative danger arising from arterial and venous hæmorrhages, (as occurring in other parts of the body,) is not true, Mr. Radford observes, in the cases referred to in these observations. "Venous hæmorrhage from the umbilicus occurs frequently, and in general terminates fatally. Arterial hæmorrhage, on the contrary, in this situation, is more rare, and more fortunate in the result. I have already alluded to the insufficiency of compression to arrest bleeding from the umbilical vein. This is readily accounted for, when we consider the situation of the vessel, which is placed behind the flexible abdominal parietes, to which it is attached, there being nothing firm or resisting behind it, by the aid of which a compress might effectually obliterate the calibre of the vessel.

"Another circumstance unfavourable to the operation of compression, is the indisposition to contraction in the vein. From my examination of infants after death, I conclude that this vessel is not materially changed immediately after birth. The calibre is not completely and permanently obliterated at the time of the separation of the funis. Its extremity alone is consolidated by adhesive inflammation, the remaining portion of the vessel being filled with coagulated blood, which is gradually absorbed. The removal of this coagulum commences at its umbilical extremity, at which place it is first converted into ligament. Escharotics have been recommended to arrest bleeding from this vessel. The danger of propagating inflammation to the abdominal cavity in consequence of the immediate connexion of this vessel with the peritoneum, would be a sufficient objection to the employment of these means, besides their inadequacy to accomplish the end. The actual cautery has also been recommended, but its application is equally dangerous. I have also stated that an attempt to bring together the sides of the bleeding vessel, by passing a hare-lip pin through the integuments, &c. was unsuccessful. The reason of this will be readily understood if the condition of the orifice be considered, which is usually in a ragged state of ulceration, and sloughy, and therefore highly unfavourable to obliteration by adhesive inflammation. From the preceding observations it will appear that little reliance is to be placed upon the means usually recommended for the management of bleeding from the umbilical vein. Under these circumstances then, what is to be done? we have no alternative but that of cutting down upon the vessel and placing a ligature upon it. If we have recourse to this expedient, an incision must be made through the integuments in a direction upwards from the umbilicus, cautiously cutting down to the vessel, which, by stretching its extremity, is felt to be of a cord-like firmness. As this vessel lies external to the peritoneum, great care must therefore be taken in detaching the membrane from the vein, neither to wound nor include it within the ligature. This practice promises the greatest chance of success, and at all events does not, (if due care be observed in the operation,) place the little patient in a more dangerous situation. An inquiry will naturally be made, is a ligature to be applied in all cases, and under all circumstances, of umbilical bleeding? The case before

stated of a successful termination by means of a compress, &c. will sufficiently prove that a hasty cutting down upon the vessel, and an indiscriminate application of a ligature is not to be recommended. The bleeding in this instance I suspected to proceed from one of the arteries. Hæmorrhage from these vessels is much more manageable on account of their greater length and the contractile power of their coats. A case of fatal umbilical hæmorrhage is related by Mr. Pout in the twelfth volume of the London Medico-Chirurgical Transactions, in which, from the examination after death, Mr. Pout concludes that the hæmorrhage proceeded from one of the arteries. He says, 'if ever another case of the kind were to come under my care, I should not hesitate to cut down upon the arteries and tie them as the only means of security.'

"As the vessels run in opposite directions, it will be important to have a correct diagnosis, in order not to make fruitless incisions. In cases of venous hæmorrhage, 'the blood is uniformly thick and dark-coloured, and is never thrown forcibly out, but oozes incessantly from the mouth of the vessel, which is in the condition I have before stated. On the other hand, in cases of arterial hæmorrhage, the blood is of a lighter hue, and must in some measure be influenced in its discharge by the action of the vessel. In order to act upon the most certain grounds, it would be well to try the influence of compression, which, if the hæmorrhage be arterial, I believe would be successful; but if this trial should fail, and the other diagnostics of venous bleeding be present, then I should not hesitate to cut down upon the vein, and place a ligature upon it as the only security.'

29. *Case of Extirpation of a Tumour on the right side of the Face and Neck with Ligature of Carotid.* By ALEXANDER EWING, M. D. of Aberdeen.—The subject of this case was a bricklayer, fifty-two years of age, who was admitted into the Aberdeen Infirmary with a large tumour situated on the right side of the face and neck, of which he gives the following account. About thirty years ago he received a severe blow on the lower part of the cheek, and next day observed a swelling on the same part about the size of an egg. This did not dissipate, but grew into a tumour, which remained nearly stationary for sixteen or seventeen years. About this time he met with a fall, and hurt his cheek on a stone, after which the tumour increased much in size. Some years afterwards, when at work, he was struck with a bar of iron, which carried off a portion of the inferior surface of the tumour, when considerable hæmorrhage took place, and the part did not heal up for twelve months. After healing, however, it increased very rapidly in bulk, and within the last two or three years has been still increasing faster and faster, particularly towards the larynx. It is firm and slightly elastic to the feel, and has a lobulated appearance. The colour is much the same as that of his face, except on the top of some of the larger lobes, where it has a whitish appearance, and at two or three places the skin is abraded and a watery fluid exudes. When injured he says it bleeds smartly. It extends from the lower part of the ear over the jaw to nearly the cricoid cartilage below, from this it extends backwards and downwards over the side of the neck, and is bounded behind by a curved line running from the lobe of the ear to the edge of the trapezius muscle. It therefore occupies the lower part of the cheek and all the side of the neck, hanging pendulous down to the clavicle. It feels pretty loose and moveable, except below the angle of the jaw, where its attachments appear to be deep-rooted. Its measurements are, from behind the ear, obliquely downwards and forwards to near the cricoid cartilage, $15\frac{1}{2}$ inches; from the angle of the mouth, obliquely downwards and backwards to the most dependent part on the posterior surface of the neck, $15\frac{1}{2}$ inches; from a point half-way between the ear and the angle of the mouth, directly downwards over the tumour, 15 inches; from a point half-way between the mouth and the cricoid cartilage, directly backwards over the tumour, 14 inches. The greatest circumference of the tumour is $20\frac{1}{2}$ inches.

The man's general health appeared good, and he was anxious that the tumour

should be removed if possible, as, from its weight, it had become a serious impediment to him, and as it was fast encroaching on the wind-pipe. On examining his pulse it was observed to intermit occasionally, and this at first made Dr. Ewing hesitate to operate; but as it was not constant, and as he did not make any other complaint, Dr. E. thought the operation might be attempted. From the connexions of the tumour, particularly about the angle of the jaw,—from the probability of the vessels being both numerous and large, which had fed such a tumour for so many years,—and from reading the account of two similar cases, one by Mr. Goodlad of Bury in the Lond. Med. Chir. Trans. Vol. vii. and the other by Dr. Stedman in the Ed. Med. and Surg. Journal, Vol. xxxvii., Dr. E. resolved to tie the common carotid artery as a preparatory step to extirpate the tumour.

February 11th.—The operation of tying the common carotid was performed in the ordinary manner. But an unusual difficulty presented on account of the tumour encroaching on the line of incision, to obviate which it became necessary, in the first instance, to dissect backwards a part of the tumour, which still impeded the operation by increasing the depth of the wound. As several small vessels poured out blood, the bottom of the wound was obscured for some time, but by clearing it with a sponge and waiting for a little time, the artery was easily secured. In order to expose the artery, I pinched up a small portion of the sheath on the tracheal side of the vessel and opened it with the scalpel, while an assistant drew the outer portion of it towards the sterno-mastoid muscle, and along with it the *par vagum* and internal jugular vein. By this mode of procedure the embarrassment that some surgeons have experienced from distention of the vein was entirely obviated, although, as will appear in the sequel, the vein in this instance was preternaturally enlarged.

The second part of the operation was that of extirpating the tumour, which was accomplished in the following manner. An incision was carried from before the ear along the anterior part of the base of the tumour and joining the wound already made for tying the artery; the tumour was then quickly dissected backwards for about half its breadth, when another incision was carried from behind the ear along the posterior part of the tumour and crossing below to meet the first incision. This incision, however, was made in such a way as to preserve a portion of integument from the posterior and inferior part of the tumour for covering the wound. The relations of the tumour were such as that it could be removed very easily except near the angle of the jaw, where its attachments were very deep. Before it could be removed from that part, it was necessary to extirpate the lower portion of the parotid gland, to which it was closely united, and to dissect it from under the angle of the jaw as far back as the styloid process of the temporal bone, which was completely laid bare.

When the tumour was removed there was a sudden gush of blood from a number of vessels, particularly about the angle of the jaw, where some large arteries required to be tied, notwithstanding the common carotid being previously secured. To give some idea of the size of the wound, it laid bare the lower part of the cheek and the whole of the side of the neck so as to expose the parotid and submaxillary glands, part of the masseter, the digastric, styloid, part of the mylo-hyoid, and the greater part of the sterno-mastoid muscles. The operation was concluded by raising the flap which was preserved, and uniting it to the cheek by a few stitches of interrupted suture. The whole of the wound was thus covered up except a part of the parotid gland. During the whole of this formidable operation, which the patient bore with the utmost fortitude, not above 1lb. of blood was lost, and when carried to bed he was neither very faint, nor did he complain of much pain. The tumour weighed nearly five pounds.

Vespere, h. 8va. Has been easy and slept a good deal. Pulse full, and intermits every fourth or fifth beat. Carotid of both sides beats strongly.

Nothing remarkable occurred subsequently; but it became evident on the third day that the patient was gradually sinking, at 1 o'clock, February 15th, he died.

Examination next day. "Slight adhesion had taken place along the edge of the flap, and when this was torn up, patches of pus were found streaked over the side of the neck where the tumour had been removed. The line of incision made for tying the carotid had also partly adhered; and on cutting deep towards the artery we found that lymph had been poured out and become organized so as to cover the artery. I cut out a portion containing the sheath of the artery, vein, and nerve, and dissected them carefully afterwards. The artery was found to be unusually large, but otherwise healthy. The *vasa vasorum* were seen ramifying very numerous along its surface. A plug of fibrin filled the vessel for nearly two inches below the ligature, and a similar one for about half an inch above it. It was found that the artery was firmly constricted by the ligature, and a little lymph covered the noose so as to fill up the notch made by the thread. The vein and *par vagum* were found undisturbed in their relative situation, and the former seemed unusually large.

"2d, *Thorax*.—On raising the sternum, we found a large quantity of fat covering the pericardium, adhesion of left lung to the pleura, and a little pus below the pleura at the upper part of the sternum. On the surface of the left ventricle of the heart there was a portion of false membrane. The right side of the heart when opened, appeared sound. In the left side the mitral valves were a little thickened; and the semilunar valves at the root of the *aorta* very much thickened and corrugated."

MIDWIFERY.

30. *Case of Retention of a Fetus, and a portion of the Placenta.* By Surgeon SHONLAND.—Jane Finney, aged nineteen, the wife of a sergeant of the 96th regiment, a young woman of a nervo-sanguineous temperament, in consequence of a sudden fright in the beginning of January, 1828, began to feel labour pains about a month before her computed time. Having always enjoyed good health, except suffering occasionally from slight ailments, attendant on her pregnancy, she did not apply for assistance until after four or five days, when the pains became so violent, as to induce her to send for Mr. — of —, whom she had engaged to attend her.

Mr. — recommended the adoption of means to delay the labour to the regular period, and accordingly bled her twice on that day, and administered medicines to produce the same effect. By these measures, and the debility consequent on the large abstraction of blood, the pains were suspended for about forty-eight hours; they then recurred with more violence, and in the course of another forty-eight hours the labour terminated, on the 14th January, about ten o'clock at night, in the birth of a small female child. The pelvis being rather small, though not otherwise ill-formed, and the breech the presenting part; the body was excluded, as she conceived, more than an hour before the head could be extracted. At this time Mr. — was urgently required by another patient; and left Mrs. F. in charge of the nurse, during about five or six hours that he was absent; the head was extricated by the returns of the pains, and the aid of the nurse; the child, from the long detention of the head, being *still-born*. The placenta not following so soon as was desired, was also rather forcibly extracted by the nurse, as was inferred by the violent pain consequent on her pulling at the funis umbilicalis; a copious flow of blood succeeded to this operation, and reduced her to almost the lowest state of debility; she was herself insensible to what was passing, but has since been informed, that more than six hours elapsed before the attendants could venture to remove her, or to change the soiled linen. Mr. — returned about the time that she was beginning to recover, and conceiving that all was over, he merely recommended her being kept quiet, and said she would do very well. Shortly after his visit the pains returned as violent as during any period of the labour; these being considered by the nurse

as the usual after pains, were partially relieved by the repeated exhibition of opiate medicines during the first three or four days; at the expiration of this time, the nurse finding the body continuing nearly as large as before the labour, mentioned the circumstance to Mr. —, who, after examining his patient, said, that possibly something might have remained in the uterus, but that it was then too late to attempt extracting it, and that it would come away in the course of a short time. From this time her sufferings were great, from the frequent recurrence of violent pains, and a constant discharge from the vagina, of a dark green fetid fluid; at the end of four or five months, as nearly as she can recollect, a large mass, apparently of flesh, came away; notwithstanding this, the pains and discharge continued, and compelled her to be in almost constant attendance on Mr. — for relief, until she embarked with her husband, on the 14th May, 1829, for Halifax, Nova Scotia.

On board the transport she suffered greatly from sea-sickness; this, by the violent straining, had the effect of expelling from the uterus several large masses, but from her situation their nature could not be ascertained. She arrived at Halifax in a very debilitated state on the 5th July, and shortly after applied to me for assistance.

After hearing her statements, I examined the state of the uterus, and found it enlarged and hard, the os tincæ was rather dilated, and effectually stopped up by a broad bone, which could not be removed, nor would allow of a finger passing it. She had stated that the discharge, though still constant, was much diminished in quantity, except at the periods of menstruation, when a large quantity of fluid accumulated in the uterus, and frequently from a sudden motion of the body, or when lying in bed, would burst forth with violence, and occasionally bring with it small pieces of bone. In this manner, after a delay of a few days, this bone came away, as did subsequently several smaller ones, with comparatively but little pain. By February, 1830, nothing appeared to remain in the uterus, though, on examination, its orifice was hard, and apparently in a scirrhus state. In the month following, she had acute pains in the uterus, extending to the right side, for which she required bleeding and antiphlogistic treatment. Subsequently, by the use of tonic medicines, a nutritious diet, and moderate exercise, she regained her strength, and recovered, in a great manner, her former healthy appearance. The uterus must also have returned to its natural state; the menstruation did not appear to have been regularly established, as she proved to be pregnant in the month of July, 1830, and in March, 1831, after a labour of about fifteen hours duration, which proceeded in the usual manner—she was delivered of a female child, small, and apparently not at its full time, which survived its birth only twelve hours. Since that time she has had tolerably good health, and is now, (Sept. 1831,) about three months advanced in her third pregnancy.—*Lond. Med. and Surg. Journ. Sept. 1832.*

31. *Case of Laceration of the Centre of the Perineum, and Passage of the Child and Placenta through the Aperture, with Remarks.* By Baron DUFUYRE.—Madame Bourgillon, a cook, aged thirty-eight, of middle stature and symmetrical formation, but rather dry fibre, married about a year, and pregnant for the first time, was taken in labour on the morning of Sept. 8th, 1832. At first the pains were slight, but became more intense towards mid-day, the head of the infant presenting in the “first position.” The labour proceeded briskly, and was not retarded until the occiput arrived at the external fissure, which was extremely narrow. There then took place several sharp pains, during which, according to the account of the midwife, the vulva was dilated to the extent of about an ordinary drinking-glass, (*verre à boire*,) when the forcing effort ceased, and the head receded. The midwife now lubricated the parts with oil, keeping her hand on the perineum, in order to support it. At a quarter, to 4 o'clock, there came on, quickly after each other, two very violent pains: she felt the perineum tearing under her fingers, and the head, followed by the body of the

infant, was straightway expelled through the laceration. The cord was tied and cut, and the child handed over to an attendant: the cord was now hanging from the artificial aperture, and the placenta speedily passed by the same route. No hæmorrhage took place. The infant was of the medium size, and is thriving well.

In her first alarm the midwife sent for M. Baudelocque, but seeing that Madame B. was not suffering, and that there was little remains of the rent to be perceived, she merely told him that the labour was over, without alluding to the accident, and resolved to let the first nine days pass over before she informed her patient.

Every thing went on well for two days; but a clyster which was then administered having immediately returned, without the patient having any power of retaining it, led to the apprehension of the sphincter ani being ruptured: it was even supposed that a portion of the clyster had returned by the wound. It was now necessary to acknowledge what had happened: however, some further time was allowed to pass without surgical aid. Castor oil was given, to keep the bowels open freely, and get rid of the milk. The babe was sent to a wet nurse, and the mother had little fever, or other symptom, except copious perspiration.

On the tenth day M. Guersent, jun. was consulted. He first tried very dilute lotions of chlorine, then touched the parts with caustic, and finally brought the edges of the wound together with sutures, the ligatures being supported by two buttons of gum-elastic. At the end of four days union seemed to have taken place, except at one small fistulous point next the rectum. The sutures were removed, and the adhesions seem to have continued two days, but were then destroyed, during some effort made by the patient. On the 6th of October she came to the Hôtel-Dieu. The most scrupulous examination was then instituted into the causes and consequences of the occurrence. The patient, as already stated, was found to be well-formed; the upper brim of the pelvis had the ordinary dimensions: the sciatic tuberosities had the usual distance; and the other parts presented nothing which appeared calculated to produce such an accident. As to the soft parts, the vulva remained entire, without any laceration at the fourchette, and was still narrow—the patient stating that the approach of her husband still produced pain. It is proper to remark, however, that the uvula is turned forward, being situated very close to the arch of the pubes, so that there is about an inch and a half between the posterior commissure and the anus. At this time four weeks had elapsed since the accident, and the tumefaction had subsided, leaving the parts in their natural state. The wound began four lines from the vaginal commissure, running backwards on the raphe to the extent of nine lines, and then falling at right angles into a transverse rent of six or seven lines, giving to the whole somewhat the form of the letter T. The measurements were taken when the parts were left undisturbed, but if the wound be stretched the dimensions become much greater: M. Dupuytren introduced three fingers without the slightest difficulty. The opening was continued perpendicularly upwards and between the rectum and vagina. No injudicious expedients had been had recourse to during the labour, and M. Dupuytren had always considered the midwife a skilful one: she had practised four-and-twenty years. The patient had been placed nearly in a sitting posture during labour.

After this minute description of the circumstances, observed M. Dupuytren, there are two objections to be considered. The first relates to the doubt expressed by M. Capuron of the possibility of such an event. This gentleman says, that before yielding his belief he would require to know the size of the child's head: but if it be admitted that a small head might pass, the question is answered, for who will say that in parts so distensible a larger head may not pass when a smaller one has gone before?

The second argument consists in explaining the facts brought in proof of the event, by giving to them a different signification. Thus Mad. Lachapelle, before M. Capuron, had held that in every case of central rupture of the perineum the infant does nevertheless pass by the vulva, and she was wont to cite nume-

rous instances in support of this doctrine. But this only shows, what every one must admit, that the perineum may be torn, though the child is born in the natural manner. That this may often happen, is granted; that it happens always, is inadmissible. Here is a case in point, with every circumstance to render it conclusive; and yet when M. Coutouly—a name honoured in science, related a case of this description, it was said he had lost his senses—he had been agitated—he had not seen. But if such a man did become agitated, assuredly it must have been after, not before the accident which affected him. But is it really so marvellous? To my mind the wonder is, not that it should occur sometimes, but that it should happen so seldom. Whoever has witnessed first labours, in which the vulva has so much difficulty in dilating, and the perineum so much disposition to become stretched, must have felt some apprehension lest the head should burst through it. It may be asked how—the supposed passage having been formed—the laceration does not extend into the vagina and rectum. But the *how* matters little; the fact speaks for itself. We might as well inquire how in this case, for example, the head passing by this so narrow vagina, respected the thin commissure which separates it from the wound? I am convinced that this passing of the head by the perineum is not so rare as experience would seem to show, merely because the commissura vaginalis being ruptured, the accident receives the name of laceration of the fourchette. This leads us to inquire into the circumstances which favour an occurrence which is acknowledged to be uncommon; and the first point we remark is, that it takes place exclusively, or nearly so, in first labours. This patient, as has been seen, had the vulva turned forward. This arrangement is very remarkable, and too little known, in persons otherwise well formed, and who have not borne children. The vulva is sometimes situated forwards, and very near the pubes; sometimes very near the rectum, and looking downwards. It may easily be imagined how much, in the former case, the difficulty of labour will be increased, the vulva being only capable of extending itself backwards, and the head of the child having a longer traject to make; besides which, it is constantly pressing upon a perineum which extends more and more before it. At the very first examination this distention of the parts struck me in our patient; and accordingly the wound was found to be in the centre of the perineum, in the situation and with the direction which the natural passage has in other women. The position given to the patient appears also to have had great influence; she was so much supported by pillows as to be nearly sitting. This is in accordance with other analogous facts; in one such, for example, it is stated that the child was expelled through the perineum while the mother was sitting on the close-stool. Now it is clear that in such a posture the combined efforts of the uterus and abdominal muscles bear down with the greatest energy upon the perineum, and consequently that the patient ought to be placed horizontally.

- Is blame to be attributed to the accoucheur for neglecting to afford due support to the perineum in such cases? In fact, the effort by which the child is expelled appears too energetic to be controlled without danger by external pressure. M. Coutouly supported the perineum very powerfully in such a case, but without success. M. Evrat makes the same statement; as does Mad. La-chapelle.

On the second day, as above stated, a lavement could not be retained. As, however, it is ascertained that there is no communication between the rectum and vagina, this was probably owing to paralysis of the sphincter, which frequently lasts several days after delivery. Why did not M. Guersent succeed in curing the wound, as union had begun? Assuredly because he removed the ligatures too soon. In recent wounds reünion may be accomplished in four or five days, but in those which have gone on to suppuration—unless the granulating process be established, and favourably, a much longer time is required. Still more does the remark apply to a wound of this nature, where the adhesion is further retarded by lochial discharge. I

have many times, (said M. Dupuytren,) had occasion to unite by suture suppurating wounds, and I have found that the process required twice as long as in recent wounds, and more than this under circumstances like the present. I was called by M. Gardien to a young girl put to bed clandestinely: the labour had terminated in a complete rupture of the perineum, which reached as far as the anus. Many days had already elapsed, and I introduced sutures at separate points; but now I should prefer the uninterrupted form. At the end of a month the girl was obliged to return to her father's, and the union was not then complete, obstinate suppuration having been the only obstacle—for I had not cut the threads, and they had not worn through the flesh. I recommended that the sutures should be left, thinking union would yet take place: this was done, and I heard nothing more of the case at that time.

Three or four years after, I saw a man and woman enter my consulting-room, the latter keeping behind, and making me a sign, to be prudent. The man—he was her husband—informed me that he had not been able to consummate the marriage, and he wanted to know whether the fault lay with him or his wife. I examined her, and found the opening of the vagina very narrow, and turned forwards: the perineum displayed a long and firm cicatrix. I advised the husband to renew his efforts, which were at length crowned with success: the woman became pregnant, and was delivered without any fresh laceration—rather a remarkable circumstance. This was the patient on whom I had operated several years before, and she informed me that the medical man who afterwards saw her left the ligatures undisturbed, till perfect union had occurred.

In most cases union will occur spontaneously, under the assistance of rest and cleanliness; in the present instance, however, that cannot be expected, for the edges are partly cicatrized. Now here lies the doubt: ought reünion to be attempted, or the septum between the wound and the vulva be divided? By this last proceeding a large orifice would be formed for the vagina, which would be attended with no inconvenience, while it would greatly simplify the matter. To effect reünion fresh edges must be made, the uninterrupted suture applied, and suffered to remain as long as it produces no mischief. By this means would be produced a very narrow aperture to the vagina, and that turned forward, so that on a second accouchement the same difficulties would occur as before, increased by the less extensibility of the perineum. The subject must be duly weighed before we come to a decision.—*Med. Gaz. Oct. 1832.*

52. *Musk in Uterine Hemorrhage.*—Dr. HAUFF recommends musk in doses of 8 or 10 grains every quarter or half of an hour, as an excellent remedy for flooding, particularly when occurring after too precipitate labours.—*Gaz. Med. and Medicinische Conversations-Blatt, No. 3.*

53. *Case of Twins, one born sixty-nine hours after the other.*—An interesting case of this description has been communicated to the Medical Society of Paris, by Dr. CHARLES GERARD, of Morteau. The delivery took place at full term, according to the calculations of the mother and the appearances of the children, though one child was smaller than the other. The two placenta were entirely distinct. Between the birth of the first and second child, the mother enjoyed for several hours a perfect respite from all pain. The details of the case are given in full in the *Transactions Medicales* for June last.

MEDICAL JURISPRUDENCE.

54. *Case of Poisoning by Arsenic.*—M. and Mad. Caillette having eaten some *bouilli* and other meats at dinner, were seized, two hours after, with sickness and vomiting, which, however, by degrees ceased, and did not again return till

Next morning. Purging now supervened, and the stools were inodorous and unhealthy. On the following day, the vomiting was attended with much anxiety and great prostration of strength, and a sensation of tightness at the throat.

The day after the above patients were seized, a domestic, who had also eat of the bouilli, became dangerously ill, with extreme exhaustion—feeble, whispering voice—pulse scarcely to be felt—involuntary twitchings of the muscles—vomiting and painful purging. She died thirty-six hours after seizure. Also a beggar, who had applied to the first patients for charity, had received some of the bouilli, which he voraciously devoured. Soon afterwards, violent vomiting and purging, extreme thirst, and universal tremors came on, and were succeeded by a state of coma. He, however, slowly recovered; but not so M. and Mad. Gaillette, who lingered, the former for thirteen days, and the latter for four weeks. Before death, both suffered much, from a sense of burning in the throat, dysphagia, fever, aphthous ulcerations on the mouth and tongue, and a remarkable insensibility of the hands and feet; in short, the symptoms of chronic gastro-enteritis. Dissection revealed nearly the same appearances in all three.—Marks of vivid inflammation in the stomach and duodenum, and a morbid development of the glands of Peyer and Brunner in the ileum.

There was discrepancy of opinion among the two medical attendants as to the cause of the deaths—one suspecting that poison had been swallowed, the other referring the symptoms to a *choleroïd* disease. The ignorance of chemical manipulation prevented the former from satisfying himself.

Some of the ejected matters, and also the stomachs of the deceased, were sent to Orfila for examination; and the presence of arsenic was speedily detected by him in the vomitings of the domestic, but not in those of the master and mistress. This is not surprising, if we consider the lapse of time between the seizure and death. It is to be remarked that a packet of arsenic was afterwards found in the house of Gaillette, and it is supposed that it had been used for salting meat.—*Med. Chirurg. Rev. July, 1832, from the Journ. Universel et Hebdom.*

35. *Case of Poisoning by Arsenic.*—An individual named J.—, aged nineteen years, said he was unwell on the 8th of August, 1831. He was affected with diarrhoea and vomiting. These were supposed to arise from indigestion, and some tea was administered to him. Some hours afterwards, about noon, he said that he was better, and asked for food; he was allowed some broth. The vomiting and purging continued. In the evening he again asked for food. The persons around him, intreated him to send for a physician; he refused, saying, that it was nothing, but that if he was not better the next day, that he would see one. Food however, was denied to him, and he sent for me in the evening. I found him in the following condition: countenance calm, not altered, no expression of pain, cold; eyes sparkling; tongue cold and pale; extremities cold; pulse thready. The patient on being questioned, as to whether he had taken any thing that could have induced these symptoms, replied in the negative; he stated only that his abdomen had been enlarged for some time past; we could not, however, discover any swelling in it, nor was it more developed than in the normal state. Pressure on it occasioned no pain, and its temperature was natural. The patient's mind was not affected. Twenty minutes after our first visit, he lost his speech, and death ensued in eleven hours.

The median vein was opened, but there was no discharge of blood.

Autopsy, thirty hours after death.

Head.—The membranes of the brain were in a normal condition, except at the upper part, where in a space of four lines by two there was an adhesion between two layers of the arachnoid (traces of an old inflammation.) The ventricles of the brain contained a little reddish serum, (about two tea-spoonfuls.)

Beyond the thalami nervorum opticorum, in the two ventricles there was a softening of that part of the cerebral substance, which forms the external parietes of the ventricle. This softening was most decided in a space of $3\frac{1}{2}$ lines

by one in depth. The remainder of the brain and all its blood-vessels appeared to be healthy.

Thorax.—The pericardium contained about a tea-spoonful of serum; it appeared healthy. The heart was soft, flabby, and could be torn with great ease. In the right cavities, we found liquid blood of a livid colour, without fibrinous clots. In the left cavities, the blood was similar, but there were some small fibrinous coagula. The inferior vena cava contained liquid blood, of the colour of wine lees. The internal membrane was slightly reddened. (A post mortem change.) The lungs were crepitant throughout, but their tissue could be readily torn, especially the posterior portions, where they were filled with a blackish, spumous, and as if purulent liquid. This fluid, or this blood, existed in large quantities in both lungs. No alteration in the bronchi.

Abdomen.—The mucous membrane was not softened, presented a very abundant secretion of mucus. It had a yellow tint over most of its surface, but with here and there brown, livid patches, especially at the greater curvature of the stomach. Between the valves of the stomach, and on the mucous membrane, we collected a great number of small fragments of a vitreous substance, which analysis proved to be arsenic; there was more than twenty grains of it.

Three lumbrici were found in the small intestines. The mucous membrane was not softened, but strongly injected in several spots of three or four inches in extent. The follicles of Brunner were very numerous, especially towards the ileo-cæcal valve and duodenum. The large intestine was also the seat of a violent inflammation in several spots, and was filled with a large quantity of fluid. Its mucous membrane swelled, and near the ileo-cæcal valve, it formed a kind of polypus. The bladder contained about two spoonfuls of a turbid and as if purulent fluid. Its mucous membrane was highly injected. The tissue of the kidneys appeared healthy, except that it contained a fluid analogous to that in the lungs. The spleen was softened, of the colour of wine lees, its tissue easily torn. The liver was large, a little injected, without any other visible alteration. The pancreas was healthy. The mesentery contained about thirty glands as large as a bean, none of which were softened or suppurated. The great sympathetic nerves were injected.

Observations.—This is certainly one of the most violent cases of poisoning that could be met with, and nevertheless the countenance gave no indications. The digestive canal was the seat of the highest inflammation, and yet the patient complained of no pain, even when great pressure was exercised on the abdomen.

In the post mortem examination, there was every where found the altered, black blood, so often seen in cholera patients. The urinary secretion had ceased, and nothing was found in the bladder except a white, milky fluid. We should also remark, that the alteration of the brain which was found after death, was not suspected during life. Nevertheless, the quantity of arsenic collected from the stomach, and in small fragments weighing many grains, does not permit us to doubt, but that the death was owing to suicide. Was this in consequence of the cerebral alteration? We cannot prove it, but we think that suicide is an evident proof of an alteration of the brain.—*Journal Universel et Hebdom.* Sept. 1832.

The above case is interesting not only in a medico-legal point of view, but also from its striking similarity to malignant cholera, and as thus furnishing evidence of the great analogy between the action of the cause, whatever it may be, productive of cholera, and arsenic, an agent whose action is acknowledged to be that of an irritant to the gastro-intestinal mucous membrane.

CHOLERA.

36. *Spontaneous Origin of Cholera, and on the liability of Insane persons to this Disease.*—The statement of M. Esquirol, as to the exemption of insane persons from cholera attacks, is, according to the editor of our cotemporary, the *London*

Medical and Surgical Journal, not verified in London. "At the Bethnal-green lunatic establishments, called the "Red House," and "White House," Dr. Ryan says, that "upwards of one hundred cases of cholera have occurred since the 10th of June last. The history of the progress of cholera in these establishments is highly illustrative of the important fact to society, and so often brought to the notice of the public by us, viz. the spontaneous origin of cholera, and its not possessing the property of being communicated directly or indirectly from the sick to those who attend them, or are near them. The two establishments mentioned, although adjoining, are completely separate as to officers, attendants, &c. There is a doorway for communication on particular occasions only, in the high wall dividing both houses. In each house there are males and females of different classes. The first case was that of a woman in the Red House, who, from her unfortunate state of mind, had been long confined within the walls, and in whose case there was no possibility of tracing the source of the disease to her communication with any other person labouring under it. When it was ascertained that the disease appeared in the Red House, Mr. Beverley, the medical gentleman in charge of the White House, felt himself bound to adopt the "precaution," as it is termed, of cutting off most perfectly all communication with the building in which the first cases occurred. Not only was the occasional communication of officers and attendants, through the door mentioned interdicted, but this gentleman had even the windows blocked up which overlooked the yard of the Red House, notwithstanding which, cholera appeared among the women under his charge; in a little time after among the men of the Red House, and lastly among the men of the White House. While this was going on to the extent mentioned, *not a single medical man who has been in contact with the cholera patients—not a single nurse or attendant of any kind in the hospital about the sick—no burier of the dead. &c. &c. has been attacked with the disease up to the present time, when only a patient or two are under treatment.* Here we must notice the curious physiological fact observed at this hospital, of the restoration of reason in the patients while under grave cholera symptoms. The liberality and gentleman-like conduct of the zealous medical men in charge of the Bethnal-green establishment, are calculated to advance the interests of science, and of humanity; but from the extreme secrecy observed in another lunatic establishment near the metropolis, in which the cholera has prevailed, we have no means of ascertaining whether the germs of the disease had been carried there in a snuff-box, or other convenient vehicle.

"Of one thing the public may rest perfectly assured, that, as to attendants on cholera patients, a similar result to that which has been just stated respecting Bethnal-green, took place in the Grenadier Guards in the Tower—for, among the medical men in constant attendance on, or who paid occasional visits to the thirty cholera patients whose treatment has been lately referred to, in a medical journal, by Mr. Harrison, surgeon of this battalion, not one has been attacked with the disease:—of the military officers who paid the hospital visits of duty, or of kindness, towards their men, not one was attacked:—*of the several, (indeed we may say many,) men in constant attendance day and night,—rubbing the patients, &c., or on occasional duty only, and whose names may be obtained, not one has had cholera.* The same immunity of medical men, nurses, &c. in attendance on cholera patients, has been observed in another Battalion of the Grenadier Guards, in which cases have occurred occasionally since the 15th of January last, the day on which John Webb, of that regiment was, (as has been admitted by the gentlemen who treated him,) attacked with *the true* cholera; although, not being able to couple this guardsman's attack with a Sunderland ship, the case, like those of several others, was blinked by a clique—

"With that low cunning which in fools supplies,
And amply too, the place of being wise."

We could go on enumerating at the Aldgate Hospital, and at many other points,

the instances of the total exemption from the disease, of attendants on cholera patients. We could in private families quote the many instances of its not going beyond an individual case, besides those of which took place in the houses of Lady Anne Windham—of the Archbishop of Canterbury—of the Honourable Mrs. Smith—of the Honourable Mr. Scot—of Sir James Macdonald—of Lord Holland, &c. &c. We could show the perfect untruth of the tale about a person having taken cholera in consequence of having worn some of Lady Blane's clothes, who died of that disease. Nobody can be fool enough to suppose that attendants on cholera patients should remain exempt from the disease, if they happen, in all respects, to be under similar circumstances with those who we see attacked without any communication with those labouring under the malady. If we have either dissipated persons, the outcasts of society, performing the office of nurses, or if we have but those wretched debilitated persons attempting to perform a duty which, in such a disease as cholera, would tire out four healthy persons, what, in either case, can be more probable than that such attendants will be attacked during the epidemic influence. If these things be considered fairly for one moment, and if, along with these things, it be considered that, according to any conceivable doctrine of chances or probabilities, we must, among many thousand events of a particular kind, expect a certain number of coincidences, which it would be utterly illogical to admit to be the *consequences* of certain assigned causes; and therefore, in the *few* instances which can be adduced of healthy, robust, and temperate persons being attacked with cholera, though not over-worked, while in attendance, it would be bad logic to assign that attack as produced by the attendance on the patient, when we see so many thousands attacked who *are not near* patients, and, on the other hand, the whole mass of attendants only attacked in their due proportion to the rest of society.

37. *Observations on the Malignant Cholera in England.*—REGINALD ORTON, Esq. the author of a valuable work on the cholera of India, has lately had an opportunity of observing the disease as it prevailed in the military cholera hospital, Regent street, Westminster. The disease here, exhibited he says all the very same singular characters that it did in India; indeed, he remarks, "its almost entire identity in all respects is very remarkable, considering the extreme difference of circumstances. I have not found the consecutive affections more frequent, more protracted, nor otherwise different from those in India, and as far as I can learn, there does not appear to have been generally in these islands that great prevalence of febrile sequelæ, which is described as occurring in Russia, and greatly altering the general aspect of the disease from that which it exhibited in India.

"The average daily number of new cases in Great Britain, which appear in the reports of the Central Board for two months back, is 530. The average of 'remaining cases' for the same period is 1515: a surprisingly small number in comparison with the great daily influx, showing that the cases in general have either died or recovered very rapidly; the average time of each case remaining on the reports, or under treatment, being less than three days. It is scarcely to be supposed that even the slight cases could get well in a much shorter time, and it appears, therefore, evident that there cannot have been any great proportion of the protracted fever cases, or rather, as I believe, inflammations, which are always more or less frequently met with. It was observed in Moscow, that the greatest number of deaths took place in the hot stage. I believe it will be found that by far the greater number in these islands, as well as in India, have died in the stage of collapse.

"The greater frequency of the premonitory diarrhœa and cholérine, certainly appears to constitute a shade of difference, but I have long ago placed the fact on record, that 'the distinct attack of the disease was frequently preceded for several days by simple diarrhœa' in India, and pointed out the preva-

lence of the various other slight affections accompanying the epidemic, to which also the term *cholérine* has since been applied. It certainly appears that the *sub-susceptibility* to which these affections seem to be owing, exists in greater proportion in these countries than in India.

"I have almost invariably found, that the mere diarrhœa has existed here from half a day to four or five days before the setting in of the severe symptoms, as if the system was insusceptible of the graver forms of the disorder until the salts and serum of the blood were drained away by the continuance of that process. The transition to the second stage is generally rather sudden and well marked. Its most usual precursor, and, probably, immediate cause, is that sound sleep which generally takes place towards morning. The patient awakes from it with an urgent call to stool; vomiting supervenes, then spasms, and the sinking of the circulation, with more or less of discoloration of the surface, and the eleventh hour for treatment has arrived!

"It is a most providential circumstance that the disease usually affords us this salutary warning, but few are sufficiently aware of the facts, or heedful of the danger, to take advantage of it, and the question is far from being settled, as to the proper mode of treatment to be adopted by the medical practitioner when the disorder is brought to his notice in this stage. Is it to be met by 'energetic' measures, bleeding, acrid emetics, croton oil? The appearance of the dangerous symptoms so often immediately follows or accompanies the first fit of vomiting, that I have always been apprehensive of *developing* the disease by emetics, when perhaps the system was quietly overcoming it by its own energies. I cannot conceive them indicated by any sound pathological views, nor do they appear to have been attended by much success in practice. There is great danger of the mustard emetic being either wholly or partially retained, particularly in the collapse stage, and thus we are applying a sinapism to the inflamed mucous coat of the stomach. And with regard to bleeding, it is so frequently followed by vomiting, and that most formidable symptom the sinking of the pulse, that, although the evidence in its favour is so strong, I would not venture on its employment unless when particularly indicated by severe spasmodic pain in the intestines or stomach, plethora, or decided inflammation, and warranted by sufficient strength of the circulation and habit. But on these points it is impossible to lay down any satisfactory general rules. The late discovery of the effects of the venous injection in cholera, appears clearly to counter-indicate blood-letting. The action of purgatives, and particularly of croton oil, is to produce serous effusion into the intestines, one of the most prominent symptoms of the epidemic, and apparently a great cause of its severer affections. How, then, can their exhibition be recommended or considered safe? It is well known that saline purgatives have often developed the disease in India. A fatal case has lately come to my notice under the care of Mr. Jones in the Strand, where the second stage appeared to be distinctly induced by a dose of aloes and soap, which the patient had taken of his own accord.

"I conceive that opium is still the sheet-anchor in the treatment of cholera. I have so often seen it lay a restraining hand on the whole process, completely and permanently arrest the morbid action when it had fairly begun, and was even advancing with rapidity, that I am fully persuaded it has a truly specific power over the disease when exhibited in its earlier stages. In the advanced period, when the whole system is paralysed from the want of arterial blood, and the stock of vital fluid is reduced to a comparatively small quantity of a dark grumous residuum, utterly incapable of supporting life, it will, indeed, fail to produce the smallest good effect; but there appears to be no other which holds out any better hope, unless it be the admirable discovery of the injection of the blood-vessels.

"The intestines will almost always be sufficiently evacuated by the diarrhœa before the practitioner is called in, and any further purgation would appear to be directly and only injurious. If the disease is met in this stage, it is probable

that it may be almost always arrested by judicious and mild treatment; opium in doses from $\frac{1}{4}$ gr. to 1 gr. in substance or tincture, or an equivalent quantity of the opiate confection, with or without calomel, and repeated at intervals, as it is found necessary; strict confinement to bed, and the horizontal posture, warm drinks, as weak tea, ginger tea, or wine whey, and perhaps a little mulled port-wine highly spiced—an excellent medicine in cholera. I have usually found the choleric diarrhœa as easily checked by these remedies as similar disorder of the bowels arising from other causes. There is, indeed, always the danger that the purging will return on laying aside the remedies, and great attention is necessary to renew and keep up a slight degree of narcotism as long as its necessity may be indicated by the symptoms; but I have found in general that this disposition to relapse does not exist. After one or two doses of the medicine, sound sleep has been induced, attended with a remarkably warm perspiration, like the sweating stage of ague, after which bile has appeared more or less abundantly in the evacuations; and the rhythm, or series, or morbid action, being completed—the system having completely got through the attack,—its susceptibility to future impressions is thereby either destroyed or very much diminished.

“I have usually given calomel in doses of from two to ten grains in combination with the opium, and apparently with decided good effect. Calomel is well known to exhibit a direct soothing or sedative effect on the primæ viæ, and in various disorders I have found a dose of five grains of it given at night produce unusually sound sleep. In this way, therefore, it is probable that it is highly beneficial in cholera, and, less directly, by its specific power of promoting the secretions. But the mercurialization of the system is a severe remedy, which can seldom be necessary in the diarrhœa cases, and after the accession of the second stage, it is rarely practicable with sufficient rapidity. Neither are its beneficial effects at all evident; on the contrary, it has often been observed in India, that persons in the state of pyalism for other complaints were particularly liable to the disease.

“In the more advanced stages, I have ventured on a pretty free exhibition of the spirituous stimuli, occasionally in the form of mulled port-wine, but more generally in copious draughts of weak cold brandy and water, which are highly grateful from the thirst, and probably beneficial by affording the requisite dilution to the system. Ammonia is also a very valuable stimulus. Of the saline system of treatment I cannot offer an opinion, having tried Dr. Stevens's draughts in only two cases, when I found them rejected repeatedly by the stomach. I have however seen very marked good effect in the collapse stage from large enemata, five or six pounds of warm water, with one or two ounces of common salt, and a few ounces of alcohol. I have generally found them retained for a considerable time, and partially absorbed. I have in several cases seen the coldness, blueness, and extreme debility of the circulation, (but not amounting to entire failure of the pulse at the wrist,) continue about two days, but by keeping up a gentle stimulation with alcohol, opium and ammonia. The powers of the system have at length effectually rallied and overcome the disease. Under the modes of treatment described above, the mortality at the Regent street Cholera Hospital has amounted only to one in eight of the cases admitted. Many of them certainly were far from being cases of the fully developed, or clearly-marked form of the disease; but it is evident that they must all have assumed its symptoms to a considerable degree, from the fact of their having been all sent thither by the medical officers of the corps to which they belonged.”—*Lancet*, Oct. 6th, 1832.

MISCELLANEOUS.

38. *Memoir on the Influence exercised by the Labours of the Physiological Physicians on French Medicine.* (Read to the Academy of Sciences.) By Professor

BROUSSAIS.—A physician who has passed the best part of his life in labouring for the advancement of the science which he cultivates, formed long ago the design of laying before the Academy an account of his labours, and of the changes which he has seen effected in the healing art.

It was blameable, no doubt, to have deferred till now the accomplishment of that design; nor can any better apology be offered for the delay than the desire which the author had of rendering more convincing those propositions which he wished to deduce from his observations, and the changes of which he is about to speak.

He comes, in short, gentlemen, to request a brief audience; for he has felt the want of your support in seconding his efforts, and those of his coöperators, in a work which he believes to be useful to society.

Anxious not to waste the time which you so usefully devote to the progress of knowledge, he will at once broach the subject upon which he is desirous of your consideration.

- Medicine, as every one knows, is the science which teaches us to recognise and to treat the diseases of living beings; but we shall confine our remarks to those of the human species.

Medical men, then, are, as it has been said, the ministers of nature; men devoted to acts of benevolence and mercy; men whose great object is the doing good to their fellow creatures. Nothing, consequently, is more natural than that they should be ever desirous of the means.

While yet a youth, filled with these ideas, the individual who has the honour to address you, felt himself, (even from the year 1804,) unpleasantly affected, from his imperfect ability in the military hospitals, to perform the delicate duty which the government had imposed on his conscience. Was it his fault that he was not more successful in the practice of his profession, or the fault of the system in which he had been brought up? He worked incessantly for five years, and in 1809 his *Histoire des Phlegmasies Chroniques* appeared. Remote from Paris, where, indeed, he was little known, and a stranger to all manner of intrigue, he had no opportunity of setting forward this work at the time of the *concours* for the decennial prizes, in 1811. He obtained, however, an honourable notice on the occasion—an encouragement which had a powerful effect in supporting his zeal and redoubling his exertions. The History of Chronic Inflammations is a work wholly experimental. At the time it was written those diseases were scarcely known. Pugol de Castres, (of whom scarcely any one dreamt, but who was speedily exhumed upon the appearance of the work,) had treated only of suppurations of the visceral cavities.

All slow and insidious inflammations which have their seat in the membranous tissues, in the chest and abdomen, were completely overlooked by the physicians of the age. The celebrated Pinel had given them no place in his Nosography—there was nothing in lieu of them but certain *organic derangements*. Corvisart, who so eminently possessed the art of exploring disease in the functions, had arrived at no correct notion of them. He knew how to determine the seat of a tumour in the viscera, but he could give no account of its nature, if it was not connected with pulmonary consumption, or malady of the heart; he paid no attention to what was commonly called organic derangement, while he saw no cause for the slow but gradual decay of the patient, except in a state of debility or cachexy—terms which conveyed to the mind nothing, but which at the same time, unfortunately, supplied wrong indications for the treatment.

The History of Inflammation threw light upon all those points hitherto obscure; it showed how inflammation was principally instrumental in the origin of the adventitious masses which develop themselves among the viscera; it exhibited how, under another form, the same inflammation invades insensibly the tissue of their membranes, and brings on that state of emaciation which was usually attributed to the feebleness of the solids and the depravation of the liquids; it did more; it proved that those weaknesses and depravations are

often curable; it determined the period of their being so, and the mode of subduing them.

From that moment, science had a new face: *organic diseases*, so vaguely understood before, had now a sense that every medical person could comprehend. The great business, then, was to palliate their direful effects—to prevent them, when their germs became visible, and practice assumed a rational form in respect to this important section of our physical ailments.

The History of Inflammation was, however, merely the first step towards that reform of which practical medicine stood so much in need. The class of fevers was in no more satisfactory condition to the understandings of men of sense, than those of the cachexies had been. Continued fevers presented themselves in general to practitioners under two very different aspects: the one they attributed to the inflammation of some particular organ; the other, which they called *essential*, was deemed independent of all local affection. The cause of the first was found in the inflammations of the viscera and in those of the exterior portions of the body. But all the visceral inflammations which might produce them were not known, so that the continued fevers of the second class which equally depend upon visceral inflammation had no local seat. Nobody knew, consequently, to what to refer them; and in this state of ignorance it was attempted to characterize them, either after their predominant symptoms, or other data still more obscure. Was the secretion of the bile predominant, they were called *bilious fevers*: was there apparently a superabundance of mucous in the fecal matter, they were called *mucous*, or *pituitual* fevers: was the heat remarkable, they were called *hot* fevers: the body cold—*cold* fevers: and if the patients at the same time complained of a raging heat within, they gave them another name. When the powers were sunk in fevers, they were called *asthenic* or *adynamic*: if the body exhaled a repulsive fetid odour, they were styled *putrid fevers*, although many physicians of the best sense rejected with contempt such a denomination, aware that putridity was incompatible with life. Other fevers were *nervous* or *atonic*, and others called after the country or place where they most prevailed: thus we have had the camp, the prison, the hospital, the Hungarian, the Low country, fever: we have had, in short, from the skin affections also, the fevers denominated the petechial, the miliary, the urticaria, &c. &c. In some instances the name and character were derived from a supposed unknown and perfidious agent, which was ever deceiving the vigilance of the physician and throwing him out of his calculations. Hence the *insidious* form. And when a better name could not be found to describe the danger of the complaint, we had the *pernicious* fever.

Let us not be misunderstood as attempting to depreciate the labours of those who have given us these results, for of such are the materials employed by modern writers for the structure of the edifice of science; and our gratitude and veneration are due to the laborious men who have supplied us with them. Our object is simply to show in a brief sketch the progress of the human mind in the acquisition of medical knowledge, and to describe the actual state of our art at the period in question. But we may offer our opinion.

And what, gentlemen, can you see of philosophy in the proceedings of the old school regarding these supposed essential fevers? Can you see in them a *science*? Alas! there is nothing there but chaos and confusion; nothing but an exhaustless source of controversy, not merely on the nature, but, what is far more serious, on the treatment of disease. In fact, any thing like agreement was rare; for in one and the same disorder, some would take their indications from the biliary or mucous secretion, while others would have recourse to the nervous system, or the debility, or putridity, of the patient.

Such was the state of medical science when, in 1816, was published the first edition of the *Examen des Doctrines Médicales*. This work, the fruit of a more extended experience, went far beyond its predecessor the *Histoire*: it inveighed strongly against the vagueness, the contradictoriness, and the insufficiency of

the prevailing doctrines. It preached up the necessity of following another method in appreciating the symptoms of disease, both chronic and acute: it counselled not to proceed any longer in medicine by the formation of groupes of symptoms. It showed, in short, that nothing was less reasonable than to call a groupe of ten or twelve symptoms the *cause* of the material alterations which were found in the organs after death. The work in question proposed to consider fevers, as inflammations are considered; to determine the seat of the latent irritation which gives rise to the febrile state—a state which is itself but an excess of irritation, caused principally by the heart; it traced fever to that latent local irritation in the viscera, as its cause, and suggested to take for the basis of the proper treatment, the influence of external agents on the *mobile* of the febrile condition, and consequently on the fever itself.

This method was eminently simple, unique, and consequently philosophical. But it was new and like that of Pinel, from its novelty it excited a violent storm against it. But, entrenched behind an imposing mass of facts, it stood its ground, and the history of the latter periods of French medicine can give a good account of its success.

One very remarkable circumstance deserves to be mentioned in its favour. In 1812 began that work which was presented to the world as a monument of French medical science—the great *Dictionnaire des Sciences Médicales*. Up to 1817 it bore the uniform colouring of Pinel's doctrine. From that time forth it became mottled with a mixture of the principles set forth in the first *Examen*. Scarcely is it finished, when forth comes the *Dictionnaire Abrégé*, in which those principles predominate to such a degree, that they absolutely make up the greater part of its bulk. In the great Dictionary, fevers are still *essential*; they are but symptomatic in the Dictionary abridged; and the Dictionary in 21 volumes, which comes next in order, reduces those fevers considerably, and those which it preserves are known by every one to be symptomatic. Both dictionaries every where display the banner of the doctrine which the *Examen* advocates.

All the observations and researches with which many physicians have enriched the science during the last sixteen years, have been made in this manner. Inflammation especially is more studied, discussed, thoroughly investigated, and specialized, than it was formerly. Irritation interposes, where the existence of inflammation cannot be ascertained; irritation rejected at first becomes every day in the labours of our young physicians, the instrument of a host of organic derangements, to which formerly the pathologist was content with bestowing a name. The connexion between the alterations of the depravations of the fluids and the different grades of inflammation and of less active irritations, are investigated, discussed with a care and an independence of all preconceived system, worthy of the greatest praise. Such are the traits which characterize the present school, and which have more especially distinguished it since 1821, the period when the second edition of the Examination of Medical Doctrines was published, and which from one volume, was then increased to two, and the fourth edition of which now publishing will extend to four volumes.

To the examination succeeded a Treatise on *Physiology applied to Pathology*. It was published in numbers, in the space of four years. It is devoted to the investigation of the causes of diseases, and it shows them in the deviation of functions, which change from the normal to the abnormal condition under the influence of the exterior modifiers constantly acting upon our organs whilst they perform their functions. This idea is one of those which our young men explore better at present, especially in that department of our science denominated hygiene. This treatise, the edition of which is almost exhausted, has received, like the History of Phlegmasiæ and the Examination, the honour of being translated into several languages.

Besides the works, some idea of which we have endeavoured to convey, a Journal entitled “Annals of Physiological Medicine,” has been published monthly, for eleven years, and has become the depository of the observations,

reflexions and memoirs, which many of our collaborators have kindly joined to our own. It is this work especially which furnishes an example of those impartial discussions relative to the nature of diseases which I have already had the honour of mentioning.

In 1828 there was published a work entitled "On Irritation and Insanity," the object of which was to facilitate the study and promote the better understanding of the truths which have contributed to the development of the science. The cause of positive philosophy has been pleaded in the first of these two works with a frankness which the circumstances rendered very dangerous to the author.

Finally, it became important to connect the cholera morbus, under its most important aspect, that of its treatment, with the principles which had elucidated the treatment of other diseases. This has been done in a small work of two hundred pages, the second edition of which we have the honour of presenting to the academy.

But, gentlemen, it is time to give you a summary and comprehensive view of the method we follow in the distinction and treatment of diseases, which we shall now attempt to do in the most succinct manner we are able.

This method has for its guides two phenomena which never abandon it at the bed-side of the sick—motion and sensation. In fact, as long as the individual is alive, his animal substance will be affected by the influence of external agents, and hence will result, under given circumstances, certain perceptions for his consciousness. The sick man suffers; but as sure as he suffers, observation describes in his suffering organs movements different from those of the sound state! The sick man takes a remedy which does him a service—his sufferings diminish; and *vice versa*.

But in the former case, his organs will be less disordered—they will more nearly approach the *normal* rhythm; while in the latter, they will tend to more and more disorder, and the disturbance will spread from the first organ to several others.

This being settled, the bases of medicine are settled also. No disease is ever in the first instance general; it always begins in some one organ, and often in a single tissue of that organ, even when it depends on a cause which has effected an alteration in the fluids—as in the case of small-pox.

If, then, the practitioner make use of his senses, and find out the primitive seat of the disorder, and if especially he ascertain the exciting cause of this rising disturbance, he succeeds most usually in arresting it, and the malady is stifled in its cradle.

It is thus that the new French method has reduced, in a manner truly wonderful, the number of severe fevers, or rather of those bad symptoms which are indeed now seldom met with, except where assistance has been tardily given, or where it has been entirely rejected. This is a fact well known: it is attested by all practitioners who have to deal with fever in the hospitals, civil and military. It is rare now to find among them any general or essential fevers; they are all reduced to affections simply local.

But suppose, that the good method is resorted to, too late to oppose the progress of the disease, and the irritation is already propagated through the system; in that case our method points out not only how the suffering organs, which it makes known, are to be treated; it also teaches us to appease their sufferings, and to follow the disease in every part of the system where it can take refuge.

But what particularly distinguishes this method is, that it rejects *γ*, means, how empirical or powerful, soever they may appear. We do not become bound to employ only one kind of remedy, for we believe that all kinds have their proper uses; but we take pains to appreciate their effect, and to accommodate them to the susceptibility of the organs disturbed. The action of the modifiers of the constitution is our constant study, and their effects on motion and sensation, our guide in estimating their value. Whatever is injurious to the case in hand is thrown aside; but we do not reject its possible use in other cases.

Thus we have no system *a priori*, no preconceived ideas, no oath *in verba magistri*. If we have adopted for our guide the irritation and ab-irritation of the tissues, it is because we cannot by any possibility find others better.

But we have not undertaken, (and we beg you to note this well,) we have not undertaken to maintain that these modifications are the immediate causes of all diseases.

We know that these causes may exist in the humours, in heat, in cold, in certain viruses, in imponderable agents, often even in influences beyond the ken of our senses, and we do not object to researches which tend to elucidate the action of these causes, and to discover their specifics; we, on the contrary, participate in them, and all the writings of physiological physicians have faith in them.

But we maintain that a disease is solely manifested by the aberration of motion or sensation, and that this aberration, sometimes greater, sometimes less, always irregular, alone furnishes to the practitioner the means of recognising whether the measures he employs are useful or injurious.

We intreat you, gentlemen, that you will each individually reflect upon this subject, and ask yourselves how you generally judge that the prescription of your physician is or is not suited to your complaints: if you feel more fever, more agitation, less repose, and more suffering, you say to him, "your remedy, sir, does not appear to me to be suited to my case;" if you feel, on the contrary, more calm, less agitation, and less suffering, you say to him just the reverse, and express all your gratitude.

Well, then, gentlemen, these modifications, which you have each of you experienced, resolve themselves ultimately into the simple facts of motion and sensation, and the system which we pursue is nothing more than the interpreting their indications in maladies. But perhaps you will say, have we not had this system from the earliest times, and has it not been practised by all the sects? Common sense would suggest such a question. The truth, however, must be told—it has *not* been so. In a large number of cases it was usual to say to the sick, "have patience, it is the remedy that is operating." In others, as in the gout, for example, the expression was, "I can give you no relief—your sufferings are necessary for nature's purpose, and you must bear them." In divers acute diseases, where the remedies only augmented the fever, and the other bad symptoms, in place of soothing him, the practitioner would congratulate the patient, and tell him that it was necessary to keep up the natural powers, in order to effect a salutary crisis.

How often have unfortunate creatures, parching with thirst, and dying for cold drinks been obliged to gorge themselves with hot draughts, which they rejected with horror, and which was always followed by renewed sufferings! This has been the practice, gentlemen; not very far away from you. Before the cholera reached France, it was treated in this way: it was only with the greatest difficulty, and by dint of checks, that the physicians of the north and east consented to allow their patients to cool by ice and cold water the devouring heat of their entrails.

There are certainly some cases in which the patient should support the disagreeableness of a remedy which is repugnant to him; but they are much less numerous than are supposed. There are still many physicians who, in costly and painful states of the digestive organs, prescribe stimulants under which the stomach suffers, and who bid the patient be of good cheer, as he will be benefited by his sufferings in the end. Others there are who have more regard for their patients' troubles, but do nothing more than change the remedy, substituting one mode of punishment for another, (always preserving the principle,) but never rendering them any real relief.

No, gentlemen; the art of sparing the sufferings and tortures of patients is not so ancient as you might suppose: it is a modern art, and an art which has made but little real progress, except under the happy influence of the method which we cultivate.

This method has received the title of physiological, that is observant of life, not life in the abstract, but life in the organs, and in the organs in connexion with all the agents which can exercise any influence on them.

You will admit, we dare hope, the possibility of substituting a method which addresses its remedies to the suffering organs, in the place of one which directs its remedies against arbitrary abstractions which it gives for real diseases; which conceives of diseases only as a collection of a greater or less number of symptoms, which must succeed one another during a fatal period, and which in its superb ordonnances neglects the growth of the disease which its prejudices adds to the evils inseparable from its course.

What does the sectary of this system of *fatal courses* (*marches fatales*) say to you the day you become sick? In place of seeking for the organ in which the disease originates, in order to arrest it and prevent its extension, he says to you with solemnity—*wait, the disease has not yet appeared*. These words alone should suffice to enable you to estimate it.

But this last system is now repelled by the present age; the former system, on the contrary, is liked and called for by the present age, because it is conformable to the wants of mankind, and allied to the positive philosophy, the spirit and immense progress of which you are well acquainted with. This system is doubtless far from the perfection to which it can attain; but it is advancing onwards, and nothing can turn it aside.

It is a system to guide men in the observation of the facts of which pathology and therapeutics are composed, and not an à priori conception devised for the explanation of these facts. We dare hope that it will not be possible to doubt this, when we shall submit to your sagacity the definition which it gives of the nature of diseases.

Familiar as you are with the phenomena of nature, you all know, gentlemen, that man cannot remain alive a single moment if he were suddenly abstracted from the influence of physical agents: his health and his diseases are then consequently the result of this influence. This granted, our definition will be clear to you.

The nature of diseases can be determined by the physician, before the death of the patient, only from the four following points of information: 1st, the knowledge of the organ primarily affected; 2d, the knowledge of the modifications under the influence of which it is affected; 3d, the knowledge of the influence of this organ upon others; 4th, finally, the knowledge of the modifiers under the influence of which all these disorders may yield.

The cure in fortunate cases and the autopsy in fatal ones, constantly confirm or disprove the diagnostic, and observation recommences with new data, upon new patients, but always and necessarily upon the same bases.

It may be determined whether there is any thing hypothetical or imaginary in a method which proceeds according to such severe rules. Is there any prejudice, any thing arbitrary, any illusion perceived in it? Does it not silence all the declamations which have been so long echoed by physicians about the impossibility of discovering the intimate nature of diseases? This nature certainly can never be discovered, if it is sought for beyond the limits of our knowledge, that is in first causes. You know better than myself, gentlemen, that the learned who have undertaken to consult nature respecting physical phenomena, have been obliged to substitute theories for these causes, and that natural philosophy and chemistry have them only to take the place of first causes in the explanation of phenomena. Now, modern medicine pretends not to offer a theory which explains vital phenomena; it contents itself with noting down what deranges motion and sensation, the composition of the solids and fluids, and with comparing these agents with those which restore to the normal condition, motion, sensation, and the composition of the solids and fluids.

All the modifiers of life are then within the domain of his researches; all have equal rights to his attention; it excludes nothing, because in accordance with

its plan and nature, it cannot exclude any thing in the facts relating to the physical or moral history of man, or to his condition in health or disease.

How then can it be termed, without injustice, an *à priori* system, a monomaniac system, an exclusive doctrine which embraces only one system of means, and rejects all others with disdain.

I have now laid before you, gentlemen, the principles, the spirit, the philosophy of the method now called the physiological. It is the doctrine of good sense, that under which all intelligent men must rally.—*Annales de la Médecine Physiolgique*, June, 1832.

39. *Protuberance of the Abdomen in some Papuan Children*.—Some Papuan children at Erromanga, one of the new Hebrides group, had a great protuberance of the abdomen, and the chest had a contracted appearance as they stood in the erect position. At first, from its tense feel and resemblance to tympanitis, I was inclined to attribute it to disease; but when I found that it existed among the whole, and they appeared otherwise to be in good health and spirits, I gave up that opinion.

One of these children, (a female,) was brought to England, and is now residing in this country, since which the abdomen has diminished in bulk. On the 20th of October, 1830, I had the curiosity to take measurements before any diminution had taken place, and the following are the results:—Height, 3 feet, 4 inches; Length of the sternum, $4\frac{1}{2}$ inches; Length from the ensiform cartilage of the sternum to the crest of the pubis, $10\frac{1}{2}$ inches; Circumference of the abdomen, 1 foot, $10\frac{1}{2}$ inches; Breadth of the thorax, $4\frac{1}{2}$ inches; Length from the anterior superior spinous process of the ilium to the sole of the foot, 1 foot, $11\frac{1}{2}$ inches.—*Mr. G. Bennett's MS. Journal*.

AMERICAN INTELLIGENCE.

Use of the Trephine in Epilepsy.—The following interesting case has been furnished us by Professor DUNLAP, being the sixth of the sort which has occurred in his hands. The other five cases were related in his paper on "Injuries of the Head," published in the first number of this journal. The success of this practice establishes two important principles in surgery:—1st. That the brain will bear severe mechanical irritation for a great length of time, without fatal disorganization; and 2dly. That the use of the trephine under such circumstances may restore the organ to its former healthy condition. The cases of Mr. Cline, first published, we believe, in the paper just referred to, bear only a slight resemblance to those of professor D., and are not meant by him, or by Sir Astley Cooper, who has since noticed them, to establish these principles so valuable in practice.

Mr. ——— received a gun-shot wound on the head in the month of March, 1832. On examination next day, his physician took from the wound a number of small bones, when, by reason of an injury done the dura mater, some brain escaped. So soon as the bones with the disorganized brain were removed, he was dressed, and at the expiration of two months he was thought to be well. The patient states, however, that a slight discharge continued to issue from the wound, and after some months epileptic convulsions, with a great derangement of the general health, ensued. It was then discovered, on examination, that the matter issued from the surface of the brain, and that the cranium appeared to be diseased. Under these circumstances he came to Lexington for assistance, his friend having furnished the preceding narrative.

On his arrival here his general aspect was that of an individual, who had suffered greatly from derangement of the cerebral and chylopoietic functions. A cicatrix of two and a half inches in length, on the central and posterior portion of the right parietal bone, pointed out the original injury.

On two points of the cicatrix were discovered small sinuous orifices, from whence was discharged an unhealthy pus. By the aid of a common probe diseased bone was detected.

The trephine was applied in the direction, and on one side of the original fracture. So soon as the segment of bone was removed by the trephine, isolated portions of bone were discovered beneath the dura mater, in a cavity of some dimensions occasioned by the absorption of the brain. Three of these, amounting in size to the thumb and finger nails, were removed, together with a morbid growth from the surface of the wounded dura mater. Simple dressings were then applied, and renewed occasionally for the week, when the patient was discharged, free from all embarrassment, both in the corporeal and intellectual functions.—*Transylvania Journal, April, 1832.*

Case of Hereditary Hæmorrhagic Tendency. By JAMES N. HUGHES, M. D., of Kentucky.—On visiting the house of a respectable farmer of this neighbourhood, my attention was directed to the case of a youth ten or twelve years old, which appeared to be rheumatic, and which was so pronounced. The correctness of my opinion was called in question by an old lady present, who was herself a member of the family, and intimately acquainted with the history of the case. On further inquiry I ascertained it to be one of hereditary origin, the rheumatism being only the sequel of another affection to which the boy had been subject from infancy, viz. hæmorrhage. Learning that this disease was common in every branch of the N. family, of which that of my friend, Mr. P. was one, I inquired particularly concerning it, when the following facts were communicated:—

1st. That spitting, vomiting and purging of blood; bloody urine; bleeding at the nose; extravasations of blood among the muscles and integuments of the body generally, especially of the extremities, producing dark discolorations and swelling, attended frequently, after a few days continuance, with obtuse pain and stiffness, and copious and obstinate hæmorrhage from very inconsiderable incisions, on whatever part of the body they are made, have been exceedingly common among the male members of the connexion.

2d. That the hæmorrhage, whenever it has manifested itself, has been invariably attended with rheumatism to a greater or less extent.

3d. That the slightest sprains or contusions have generally been followed by rheumatism of the part.

4th. That the majority of the males, who have arrived at old age, have been much disabled by rheumatism.

5th. That on the approach of old age, the tendency to hæmorrhage has been less manifest.

6th. That a considerable number of the males have died in infancy and childhood.

7th. That deaths immediately from the loss of blood have been frequent; several resulting from the employment of the lancet, some from accidental wounds, others from various internal hæmorrhages, and two of the number, simply from the application of blisters,—“*the blisters*,” in the language of my informant, “*drawing blood instead of water*.”

8th. That of the two diseases, hæmorrhage and rheumatism, the former has always maintained the priority.

9th. That the females, though in no instance sufferers from this predisposition, have, nevertheless, invariably transmitted it to their offspring.

And 10th. That the predisposition in question can be satisfactorily traced as far back as the fourth and fifth generation.

We present the above as facts, upon the authority of several intelligent and highly reputable members of the family to which they relate; a personal acquaintance with whom, enables us to repose the utmost confidence in their communications.—*Ibid.*

Case of Poisoning by Rhus Radicans.—Dr. A. A. GOULD relates in the Nov. No. of the *Medical Magazine*, the case of a lad about twelve years of age, who, while in the country about a week previously, had come in contact with the poison ivy, *rhus radicans*, which had produced its specific virulent eruption. The left arm and both legs were very tensely swollen, and their surface strongly resembled the denuded surface of a blister, scald, or burn, in a suppurating state. The similarity suggested to Dr. G. the trial of the chloride of soda, which has been successfully used in burns and scalds. He accordingly directed as follows:—R. Sodæ Chlorid. ʒjss.; Aquæ, ʒviij. M. ft. solut.

The inflamed parts were first washed in Castile soap and water, and then the parts dipped in the solution were kept constantly applied, and he was to take a cathartic of sulphate of magnesia. On the second day Dr. G. called and found the eruption dried up and the patient nearly well. “It was somewhat gratifying,” he remarks, “to find in this instance a ‘rule which worked both ways’.” The success of the solution in burns had suggested to me its use in this case; and its success in the present case suggested to the mother its use in burns, and she desired me to give her the recipe, that she might avail herself of it for burns.”

Dr. Perry has since employed the chloride of soda in a case of poisoning by the same plant, and with prompt relief.

Chloride of Lime in Ozena. By W. MACLAY AYL, of Somerset, Ohio.—I take great pleasure in being able by the following case, to corroborate the success of this valuable remedy in chronic purulent discharge from the nose, recommended in the XI. No. of “*The American Journal of the Medical Sciences*,” by William E. Horner, M. D., Adjunct Professor of Anatomy in the University of Pennsylvania. It is a most intolerable and filthy disorder which has hitherto,

I believe, resisted the ingenuity of the most respectable in surgical skill, and the prospect of a certain remedy will doubtless claim for its discoverer the thanks and respect of the profession.

Early last spring I was requested to prescribe for this offensive disorder, by Mr. H—, a most respectable and worthy citizen of Somerset, Ohio. He was by profession a chair-maker and sign-painter, and 37 years of age. With the exception of painter's colic, to which he was occasionally subject, his constitution and health might be called good. He could assign no particular cause for the disorder, unless it had been excited by the frequent colds to which he had been subject in the preceding fall, or that the lead had affected his nose also. His character was a sufficient guarantee against any suspicion of syphilis. The disease had first begun about the commencement of January, 1831, by repeated and severe attacks of acute pain above the eyebrows and lower parts of the forehead, to which was often added, when the sufferings became most severe, more or less pain and inflammation in the eyes themselves. Bleeding, purging, blistering, and various other remedies had been used with little or no benefit, and the attacks continued to increase in frequency and severity for two months, when the nose suddenly opened, and there followed a copious discharge of the most offensive muco-purulent matter; it was from but the one nostril at first, though the other subsequently became affected. The running was most troublesome and abundant early in the morning, the nostril by that time having become perfectly full. At night, especially, if he chanced to sleep upon the back, the matter would run down his throat, and by its offensive character produce so much sickness as most generally to destroy all appetite, at least, for breakfast. During the day, the ready opportunity of blowing, rendered the discharge much less disagreeable, but the constant effort kept his nose always uneasy, and more or less painfully inflamed, and if any sudden cold, to which he appeared remarkably subject, caused the running to stop, the original pain and distress returned immediately to the forehead, nor would it again be relieved, until a more copious discharge ensued.

At my request he commenced the use of the chloride of lime on the first of March, 1831, by putting a tea-spoonful into a cup of water, and injecting the clear liquor three times a day, high up into the nostril. Its effects were at first very severe, made him sneeze terribly, and he did not continue it long before it produced both so much pain and hæmorrhage, as obliged him for a week to suspend it altogether. At the end of that time he began again; the effect was not so severe as before, and he determined to persevere. It always produced a more copious discharge, and did much service in correcting the fetor of the matter, but he had continued it three times every day for at least four weeks before he was satisfied that it was producing any permanent change. Nearly about the same time the other nostril also commenced running, after which he improved so fast, that by the end of June the cure was complete. It has not since returned in the slightest degree.—*Western Journal of the Med. and Phys. Sciences*, July, 1832.

Case of Discharge of Wind from the Womb: By Dr. RAY, of Eastport, Maine.—The subject of this case is 40 years old, has borne ten children, and when first under notice, was advanced into the fifth month of her tenth and last pregnancy. She was suffering, as was usual for her in that situation, extreme pain in the whole uterine region, from which she never had received relief by medicine. Her complaint, she told me, had been attributed, by a physician to whom her case had been described some years before, to *wind in the womb*, and its history left no doubt of the correctness of his opinion. It first made its appearance about seventeen years ago while pregnant with her second child, though it was not till a long time after that she became acquainted with the true nature of her complaint. She was always sensible of the passage of wind from the vagina, but did not suspect there was any thing unusual in this circumstance. From that time she never has been free from the disease, whether the uterus was in the impregnated state or not; only that while in the latter condition, it

is a source of no inconvenience, in the former it always has occasioned pain of the severest description. When not pregnant, she is merely conscious of the expulsion of air occasionally from the vagina, as often as two or three times a week, though its frequency varies at different times; and never has observed the air accumulate to such a degree as to produce any perceptible enlargement of the abdomen. Sometimes, though not always, the air was expelled with a distinct crepitus. When pregnant the air is less often expelled and becomes by its accumulation, she thinks, the source of pain. But it is not till after quickening, that intense sufferings begin, and thenceforth it continues with little abatement till delivery gives her relief. She does not think that the disease has increased in severity with time, or suffered any material alteration. During her last pregnancy however, which was in 1831, she thought she experienced more pain than at any former period, and certainly, for four or five months, the sufferings of this poor woman were beyond description. Usually, about two P. M. she began to have lancinating pains in every part of the abdomen; these gradually grew more sharp and frequent till the latter part of the evening, when they began to diminish, and about two or three A. M. they entirely left her. In the meanwhile, small tumours from the size of a walnut to that of a hen's egg, might be felt traversing the abdomen, under the skin, moving about and disappearing with considerable rapidity. When attempting to trace them, they might be followed for a moment and then would suddenly vanish from beneath the fingers. This was the invariable course of the disease from the time of quickening till delivery. How often wind is expelled during pregnancy, I cannot ascertain; she merely states that it is far less frequent than when not in that situation. To alleviate the ferocious pain that she suffered, I gave her the acetate of morphia, and she thinks she could not have got along without it, though as it was, the long duration of pain and want of sleep,—for she seldom closed her eyes till the latter part of the night,—made sad inroads upon her general health.

Her temperament is of the lymphatico-nervous kind, and, until latterly, her health has been remarkably good. For the last four or five years, her digestive powers have been failing, and she has had more or less wind in the stomach and bowels, though previously, she is not aware that she suffered more from this cause than others. Being advised at one time, to make use chiefly of an animal diet, she adopted this regimen during more than one pregnancy, but could not see that her complaint was at all affected.—*Medical Magazine, Oct. 1832.*

Case of Poisoning by Arsenic. By A. A. GOULD, M. D.—C. O. æt. twenty-three, a young man of respectable connexions, was induced by follies and dissipated habits to commit suicide. He accordingly procured 3ss. of ratsbane, all of which he swallowed in water about seven o'clock in the morning. The day previous he had declined taking food, so that his stomach was completely empty and the poison was taken under circumstances the most favourable for immediate and fatal action. In about half an hour he began to vomit and continued to do so for some time. From his declining all attention and resisting all interference, his friends began to suspect that all was not right, and a physician was sent for about ten, A. M. He appeared in a lethargic state, with his eyes closed, would answer no questions, and obstinately resisted all attempts to administer medicines or drinks. Watery discharges, yellowish, and slightly mixed with fecal matter, were constantly occurring, involuntarily, or at least without his attending to them. The pulse was rapid, small and feeble; the skin and extremities cold. He sunk when pressure was made upon the abdomen, but made no complaint, and gave no other indication of suffering. A tumbler and a few particles of powder scattered about it were found in his room, which being thrown upon coals gave out the peculiar alliaceous odour of arsenic, and a neighbouring apothecary soon informed us of the quantity he had purchased. Milk was forced down him by holding the nose, which was soon returned, bringing with it por-

tions of the powder, large quantities of which had been previously rejected, and was found in the vessel used.

After many attempts to overcome his obstinacy, and to administer such remedies as afforded any probability of success in this too evidently desperate case, all of which he resisted, persisting in his determination to die, he was abandoned to his fate, and expired at half past twelve, P. M. quietly and without convulsions, the pulse disappearing at the wrist, and the blood settling under the nails an hour at least before expiration.

An examination of the body was permitted, which took place the next day at nine, A. M. The stomach contained more than a pint of whitish turbid fluid, in which floated some masses of flocculent matter, seeming like small portions of milk coagulated. This fluid must have been formed in the stomach, for he had taken no liquids for an hour or two previous to death, and none subsequent to vomiting. Some particles of arsenic were found adhering to the mucous coat; two or three small red patches were found near the cardiac extremity of the stomach, such as are generally found after severe vomiting, and such as I have seen produced, unequivocally, by vomiting induced in an exhausted patient by half a grain of tartarite of antimony five or six hours before death. The œsophagus exhibited nothing unusual. The whole intestinal canal presented a uniform appearance throughout; it was entirely evacuated of fecal matter and its mucous membrane appeared as if it had been macerated for some hours and then thoroughly washed; nothing like inflammation however appeared in any of the coats.—*Ibid.* November, 1832.

Lithotrixy.—We are happy to announce that this operation has been successfully performed in this city by our friend Dr. J. RANNOLEN, according to the method practised by Civiale. One of the patients was a female. Dr. R. has now under treatment a third patient, (a male,) upon whom he has operated twice, and with every prospect of a successful result. The calculus in this last case is an exceedingly hard one. We hope in our next No. to present the details of these cases.

Case of Vagitus Uterinus. By J. R. WARD, M. D.—I was called on the night of the 4th October, to see Mrs. —, about nineteen years of age, in labour with her first child. On examination, I discovered a natural presentation of the head; the pains were not very regular nor severe until between 5 and 6 o'clock A. M. of the 5th; between 9 and 10 o'clock the head passed the os externum, the perinæum in close contact with the upper lip. Supporting the head with the right hand, with the index finger of the left, I examined the neck to see if the cord had come down, and was likely to suffer compression. I found it had passed twice round the child's neck; following the course of either end of the cord, with my finger, I was under the impression, that neither went directly to the umbilicus; but that the umbilical termination must have gone round the leg. The circulation in the cord became feeble, all pain ceased, and the child remained in the situation described. Recollecting with what confidence the late Professor Davidge had asserted, that a child might respire before it was born, I determined to make an effort to produce respiration. To accomplish this, with very little effort, I cleared the child's mouth from the soft parts of the mother, opened it with my finger, which I passed into its mouth, run it around the tongue, and immediately after the finger was removed respiration took place, and the child began to cry. Feeling no longer any anxiety about the safety of the child, I turned my attention to the mother, encouraged her with the assurance of being speedily delivered, and that the child would be born alive. After taking some warm drink, the pains returned; the second pain expelled the shoulders; on the expulsion of the breech, I discovered that the umbilical cord had passed, (as I supposed,) around the leg also. After waiting some time, I found it necessary to extract the placenta. The mother and her fine son are now in the enjoyment of good health. The latter will be able to say, that few perhaps can, that he cried strongly before he was born.

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